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FUTURE TRADING

AND

THE CASH-GRAIN MARKETS

By

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COMPARISON OF CASH AND FUTURES MARKETS

It has long been recognized that futures and cash-grain markets are definitely related, but just how and why they are related has not been equally well understood. Cash and futures prices during certain periods will be found to move in close accord, but in other periods wide variations develop and without any apparent cause. When such variations occur the value of future trading is greatly weakened. This study outlines the relation of future trading to cash-grain markets. The essential features of the markets for cash grain and the markets for futures are summarized and contrasted, cash and futures prices are compared, and in the light of this comparison the principal functions of future trading are described.

COMMERCIAL IMPORTANCE OF VARIOUS GRAINS

The principal grains of the United States are wheat, corn, oats, barley, and rye, named in the order of their commercial importance. Table 1 gives a summary of the total production and value of each of these grains, together with comparative data showing the commercial importance of each, based upon a 5-year period.

TABLE 1.—*Relative commercial importance of five principal grains, based upon an average for the 5-year period, 1924–1928* [1]

Grain	Production	Farm value	Quantity shipped out of county where grown	Receipts at leading primary markets	Average commercial stocks in store [2]	Net exports
	1,000 bushels	*1,000 dollars*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*	*1,000 bushels*
Wheat_____	833, 165	988, 951	602, 288	453, 615	94, 964	177, 247
Corn_____	2, 699, 809	2, 015, 742	496, 680	262, 370	24, 481	20, 797
Oats_____	1, 371, 786	580, 017	319, 325	189, 367	20, 892	18, 781
Barley_____	240, 742	148, 839	82, 186	67, 688	7, 227	35, 595
Rye_____	50, 851	45, 394	(³)	37, 010	5, 986	24, 083

[1] All data from U. S. Dept. Agr. Yearbook, 1930, except receipts at leading primary markets, which are taken from Annual Report of the Chicago Board of Trade, 1929. Net exports compiled by U. S. Department of Commerce.
[2] 3-year average of monthly data of grain in public and private store in 39 leading markets.
[3] Not given.

Judged either by production or by farm value, corn is king by a wide margin. On these bases oats also ranks high. These two grains, however, are largely fed on farms, and therefore the quantities entering commercial channels are decidedly less than that of wheat. This is true of all four comparisons shown in Table 1, namely, quantity shipped out of county where grown, primary receipts, commercial stocks, and exports. In considering the markets for cash grain, therefore, wheat deserves major emphasis. Corn ranks second and oats third as a commercial grain, judged by three of the four tests shown, and the markets for these grains also merit consideration.

COUNTRY MARKETING

Grain is harvested in the United States from June through November. Winter wheat, oats, rye, and barley are harvested mainly in June, July, and August; spring wheat in August and September; and corn in October and November. The marketing of each crop commences immediately after harvest and continues in its various stages through to the following harvest. A considerable fraction is marketed and consumed locally, while a portion moves on to larger interior and terminal markets to be distributed to consuming centers or to be sold for export. The details of handling and shipping and the methods of sale vary considerably. A few of the more essential processes, and particularly those involved in contrasting cash and futures markets, need to be outlined.

The first important step in the movement of the crop is from farm to country elevator. At the elevator the quality and condition of the grain are determined by taking into account such important factors as test weight per bushel, color, soundness, cleanness, and whether it is damp or heating. The farmer may sell his grain to the elevator at prevailing prices, or store it there to be sold later. In either case it is binned with other grain of like quality and shipped in carload lots to the next market.

TYPES OF SALE BY COUNTRY ELEVATORS

Three general types of sale are employed by country elevators: Consignment, "on track," and "to arrive." The first of these consists in sending the grain in carload lots to commission firms at

interior or terminal markets, there to be sold to the highest bidder. In forwarding grain by this plan the elevator operator is, of course, exposed to the hazard of price decline during the period of shipment unless he can effectively hedge his purchases by offsetting sales of futures. Nor does he know what he will receive for his grain until it arrives at the central market.

He may sell "on track" at the country point, in which case grain of the grade and amount contracted for is loaded and billed according to instructions. On-track bids come from a number of sources: Local mills, manufacturers of grain products, and feeders. In addition, they are made by track buyers and interior brokers representing various industries which are, from time to time, seeking supplies. These bids embody specific requirements as to grade, billing, and shipping date, which the elevator may or may not be in a position to meet. Where the requirements can be met these bids frequently offer a better price than otherwise could be obtained.

"To arrive" bids are also sent out by buyers from the larger markets based upon prices at those markets. They are definite offers to buy, specifying the kind and grade of grain required, the price, the billing, and the time of shipment. The time of shipment may be specified as "by September 10," or "first half of September," or "within 15 days," in which case it becomes the duty of the shipper to have the grain loaded and billed within the time named. "To arrive" bids may also call for shipment to be made after a certain date, as one of the important requirements.

TERMINAL MARKETING

Terminal markets are points of accumulation as well as distribution centers in the movement of grain. Country elevators have capacities of from 25,000 to 50,000 bushels, while terminal elevators not infrequently have capacities of over a million bushels. Chicago has 20 such elevators and over 30 of smaller size. Similarly, at Minneapolis, Kansas City, and Duluth there are large storage elevators. A combined total of over 150,000,000 bushels of grain was stored at these four centers at the height of the grain movement in the fall of 1929.

Grain exchanges function as trading centers. Samples from cars of grain arriving each day are graded and displayed there. Commission firms, exporters, terminal-elevator companies, milling companies, and special industries form a market in which transactions are made embodying a wide variety of specific requirements regarding amounts, quality, and condition of shipment. A part of the current receipts is taken by leading mills and industries and is thus directly diverted into manufacturing channels, and a part is bought by the terminal-elevator companies for storage and distribution later.

Terminal elevators [1] form an important link in the wholesale marketing of grain, buying country-run grain mainly when the crop is moving, and selling in quantities and grades and at intervals as demanded. These usually hedge their grain and plan to sell later at a price to yield a merchandising profit. The price relationships involved in this process are considered later herein. It is sufficient here to observe that profit appears in the form of a merchandiser's margin, when he buys at one price and sells at a better one.

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[1] The expression "terminal elevator" is used for convenience both in the personal sense of a company and in the sense of a place of storage.

The profits of terminal elevators are dependent to a considerable measure upon their ability to mix and condition grain. Grain bought from the country varies widely in condition and quality and often may be improved by cooling, drying, and cleaning, and will then bring a better price. In addition to profits derived from storing, mixing, conditioning, and distributing grain for their own account, terminal elevators may also store grain for others at prescribed rates. Elevators are classified as either public or private. If public elevators, they must receive and store grain for others without discrimination. However, the business of this sort which they receive from interests entirely distinct from their own is small.

MARKETS IN GRAIN FUTURES

Under the grain futures act, an exchange desiring to trade in grain futures must first be designated by the Secretary of Agriculture as a "contract" market. Fourteen exchanges have been so designated. The Portland Grain Exchange has maintained trading only since June, 1929, and the Omaha Grain Exchange, the newest entrant, began trading on June 16, 1930.

TABLE 2.—*Total volume of trading and average daily open commitments in grain futures by markets and by grains, 1929* [1]

TOTAL VOLUME OF TRADING

[In thousands of bushels, i. e., 000 omitted]

1929	Wheat	Corn	Oats	Rye	Barley	Flax	Total
Chicago Board of Trade	15,684,401	4,537,201	874,273	370,970			21,466,845
Chicago Open Board	495,927	133,803	6,886	275			636,891
Minneapolis Chamber of Commerce	1,258,228		110,564	44,590	89,266	23,388	1,526,036
Duluth Board of Trade	394,483			43,336	881	20,839	459,539
Kansas City Board of Trade	850,087	232,433					1,082,520
St. Louis Merchants Exchange	28,914	9,492					38,406
Milwaukee Chamber of Commerce	36,470	30,175	10,226	3,268			80,139
Seattle Grain Exchange	12,722						12,722
Portland Grain Exchange	9,366						9,366
Total	18,770,598	4,943,104	1,001,949	462,439	90,147	44,227	25,312,464
Per cent	74.2	19.5	4.0	1.8	.3	.2	100

AVERAGE DAILY OPEN COMMITMENTS

	Wheat	Corn	Oats	Rye	Barley	Flax	Total
Chicago Board of Trade	170,289	54,466	32,133	12,892			269,780
Chicago Open Board	1,731	636	126	6			2,499
Minneapolis Chamber of Commerce	33,922		4,568	1,739	5,165	1,036	46,430
Duluth Board of Trade	13,320			1,891	65	753	16,029
Kansas City Board of Trade	22,949	6,058					29,007
St. Louis Merchants Exchange	650	297					947
Milwaukee Chamber of Commerce	693	787	479	155			2,114
Seattle Grain Exchange	631						631
Portland Grain Exchange	891						891
Average [2]	245,076	62,244	37,306	16,683	5,230	1,789	368,328
Per cent	66.6	16.9	10.1	4.5	1.4	.5	100

[1] The San Francisco Chamber of Commerce and the Los Angeles Grain Exchange each maintains a market in barley futures. The markets, however, are very small, the trading during 1929 being only 4,000 bushels in each market. Each of the exchanges shown had 302 trading days during 1929 except the Portland Grain Exchange which opened on June 19, 1929, having a total of 162 trading days for the remainder of the year. There were no trading or open commitments upon the Baltimore Chamber of Commerce of the New York Produce Exchange during 1929.

[2] The average of all markets is not precisely accurate because the Portland Grain Exchange had open commitments for only 162 days, while each of the others had 302 days. The error, however, is slight because of the relatively small open commitments of the Portland Grain Exchange.

Table 2 shows the total volume of future trading and the average daily open commitments on all of the contract markets having any trade in futures during 1929. While these figures vary somewhat from year to year, the principal markets and grains maintain about the same proportionate relation to each other each year, and for this reason any one period will serve to show their relative importance. The data on volume of trading represent the total of all purchases (or the total of all sales, the two being equal) made upon the various exchanges; the data on open commitments represent the contracts of customers open on the books of clearing-member firms being carried forward from day to day. Here again the data relate to only one side, since contracts open on the long side equal contracts open on the short side. Volume of trading thus shows the amount of contracts executed during a given period, while open commitments represent the aggregate of the contracts which customers have assumed (either long or short) as of any given date, which contracts must later be settled either by offset or delivery.

Judged either by volume of trading or by open commitments, wheat ranks far ahead of any of the other grains. In volume it amounts to 74.2 per cent of the entire trading in grain and in open commitments to 66.6 per cent. This conforms to the observation that wheat ranks first as a commercial grain. Corn is a decided second in importance in futures, accounting for 19.5 per cent of the volume and 16.9 per cent of the open commitments, and oats is third. Here also their importance in futures is in line with their position in the cash-grain markets. Taken together, these three grains accounted for 97.7 per cent of the trading and 93.6 per cent of the open commitments in futures for 1929.[2]

Table 2 also shows the relative importance of the various futures markets in the United States. The Chicago Board of Trade is by far the largest of these, accounting for 84.8 per cent of the entire volume of trading for all grains and all markets during 1929. Its total was more than 14 times that of its nearest competitor. On this exchange took place 83.6 per cent of the total trading in wheat futures, 91.8 per cent of that in corn futures, and 87.3 per cent of that in oats futures. In discussing the essential features of futures markets, the main consideration should be given to wheat, corn, and oats among the grains and to the Chicago Board of Trade among the exchanges.

NATURE OF THE FUTURES CONTRACT

One of the most popular definitions of a future is "a purchase or sale of grain to be delivered at a later date." This statement is plain enough and on its face appears sound. If on April 7, for example, a trader buys 10,000 bushels of May wheat futures, it would appear that his purchase is in all particulars identical to a spot transaction with the single exception that he will not receive his grain until the month of May. This, however, is not the case. Purchase of a future is something decidedly different from the purchase of grain for deferred

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[2] Similar figures were compiled for the 5-year period, Oct. 1, 1923, to Sept. 30, 1928, and published in the following report: HOFFMAN, G. W. TRADING IN CORN FUTURES, U. S. Dept. Agr. Tech. Bul. 199, 82 p., illus. 1930. The proportions of wheat, corn, and oats were found to be as follows:

	Wheat	Corn	Oats	Total
Proportion of volume of trading to all grains, per cent	62.1	27.1	7.3	96.5
Proportion of open commitments to all grains, per cent	46.7	26.1	19.2	92.0

delivery, and it is essential to a knowledge of future trading that this difference be thoroughly understood.

Contracts are entered into between members subject to the rules and regulations of the exchange upon which the trade is made. These rules contain most of the provisions involved in the futures contract and are supplemented by usages having the force of written regulations. As a result the future contract in common use is a sharply defined agreement, well understood by the contracting parties. Its principal elements, so far as its form is concerned, are: (1) A standard unit of trading of 5,000 bushels or 1,000 bushels; (2) a multigrade contract permitting any one or a combination of a number of grades to be delivered in fulfillment of the contract; (3) price based upon one or more contract grades; (4) grain deliverable from approved warehouses; (5) grain graded and weighed by licensed inspectors; (6) grain deliverable during a specified month; and (7) seller's option as to the grade and the day of the month for delivery.

The conditions just enumerated make the future contract a highly standardized agreement. The terms surrounding every contract are closely and rigidly drawn and are identical in character so that a buyer or seller entering into such an agreement knows definitely in advance that should he later desire to sell or buy an equal quantity in order to close out this contract he will find a ready market to which he can turn. Standardization of future contracts thus adds greatly to their mobility and enables traders to center their attention upon the variable factor of price.

DIFFERENCE BETWEEN CASH TRANSACTIONS AND FUTURES CONTRACTS

In contrast to the highly standardized future contract, cash contracts may assume a variety of forms. As a rule, cash purchases are not made with the thought that a few hours later or a few days later it may be necessary to pass them on to some one else, and for that reason they do not need to be drawn in identical form each time. Instead, each trade is made to fit the needs of a particular situation. In some cases a definite grade is needed in a particular location at once; in other cases considerable latitude is allowed in quality of grain and in time of delivery. Where delivery is made at once the cash contract becomes a spot transaction; where it is desired at a later date a to-arrive contract or some other form of deferred delivery may be employed. It is not accurate, therefore, to define future contracts as those upon which delivery is expected at a later date. This definition would fit many varieties of cash contracts equally well.

As a further aid to a clear distinction between these two forms of contracts, the following general comparison is presented.

FUTURE CONTRACT	CASH CONTRACT
(1) Trades in even lots of 5,000 bushels or 1,000 bushels or multiples thereof.	(1) Trades in various-sized units such as car lots or a definite number of bushels.
(2) A specified month for delivery.	(2) A delivery period of varying length as "immediate," "within 15 days," "at the opening of navigation."
(3) Seller's option as to day of delivery.	(3) May or may not have an optional period of delivery.
(4) Seller's option among authorized deliverable grades.	(4) Usually calls for specific grade of grain.
(5) Used for speculation or for hedging.	(5) Used for marketing or merchandising grain.

While these characteristics do not meet every difference between cash and futures contracts, taken together they serve to identify fairly sharply the respective limits of the two fields. The last point contrasts the use to which each type of contract is put and is the most fundamental of the group.

DELIVERIES UPON FUTURES CONTRACTS

When a cash contract is entered into, whether it be for a car of grain on track for delivery at once or a to-arrive contract for delivery a few weeks hence, it is fulfilled by an actual delivery of the grain contracted for. This is necessarily true of cash contracts since it is the business of the contracting parties to market and merchandise grain. But in the purchase or sale of a future, it is the exception rather than the rule for the contract to be fulfilled by actual delivery.

Futures contracts are frequently entered into several months in advance of their ultimate maturity. The buyer need not make immediate plans to take delivery nor the seller immediate plans to make delivery. Each places with his broker an adequate margin to assure financial integrity, and stands by. If the price advances the buyer may decide to take his profit by selling an equal quantity of the same future. This he can easily do because of the highly standardized and mobile market for these contracts. Similarly, the seller may want to close out his contract or "cover" his position in order to limit his loss, and this he can easily do by buying an equal quantity of the same future. The ease with which futures contracts can thus be entered into and passed on accounts largely for their use as a speculative medium.

For much the same reason, trading in futures is frequently used as a means of hedging against adverse price changes. Merchants, millers, and shippers holding large supplies of actual grain, are said to "occupy a long cash position." In such a situation they sell futures to an amount equivalent to their net holdings of actual grain. As their grain or flour is sold the hedges are removed by purchases of equal quantities of the same future. If their cash position is short, due to deferred-delivery contracts outstanding for which the necessary supplies have not as yet been acquired, they will buy futures to this amount. Later, when the actual supplies are acquired to meet these deferred contracts, the long futures position will be closed by sales of equal amounts of futures. A fuller analysis of the practice of hedging is deferred to a later section. The point to be noted here is that in this use of futures as a hedge, as in its use as a means of speculation, no actual delivery upon the contract is ordinarily made.

Another and very important reason why futures contracts are not extensively used as a means of receiving or delivering actual grain, grows out of the nature of the future contract. It is a multigrade agreement permitting the seller to choose from a number of grades of grain for delivery. Because of this feature, buyers are not certain of receiving a class or grade of grain which they can use should they be in a position to accept delivery. Similarly, sellers who are in the cash-grain business usually prefer to sell in the cash market rather than to deliver on the future sold as a hedge. This preference is due to the premium usually to be obtained in the cash market.

Table 3 illustrates the extent to which contracts for futures maturing during the year 1929 upon each of the four leading markets were

ultimately fulfilled by actual delivery of grain. All grains traded in are shown for each market; and for each grain the volume of trading, the volume of deliveries, and the ratio of deliveries to trading are shown. It will be seen at once that the proportion of deliveries is small. For wheat and corn the average is less than 1 per cent for the four markets combined, and for oats the proportion is less than 2 per cent. Flax futures show the highest ratio of deliveries, and to a corresponding extent the trading in this grain is of a merchandizing character and not of a speculative or hedging character.

TABLE 3.—*The volume of contracts settled by delivery compared with the total volume of trading for the four leading grain futures markets, by grains, for futures expiring during 1929* [1]

[In thousands of bushels, i. e., 000 omitted]

Market	Wheat	Corn	Oats	Rye	Barley	Flax	All grains
Chicago Board of Trade:							
Volume of trading	13, 180, 736	4, 731, 197	789, 600	340, 534			19, 042, 047
Deliveries	73, 449	24, 238	11, 026	13, 064			121, 767
Per cent	.56	.51	1.40	3.84			.76
Minneapolis Chamber of Commerce:							
Volume of trading	1, 114, 705		102, 955	42, 758	82, 166	26, 559	1, 369, 143
Deliveries	11, 889		1, 330	1, 236	3, 149	1, 140	18, 744
Per cent	1.07		1.29	2.89	3.83	4.29	1.37
Kansas City Board of Trade:							
Volume of trading	728, 238	234, 684					962, 922
Deliveries	6, 726	1, 203					7, 929
Per cent	.92	.51					.82
Duluth Board of Trade:							
Volume of trading	380, 212			41, 853	828	21, 276	444, 169
Deliveries	4, 565			679	3	1, 763	7, 010
Per cent	1.20			1.62	.36	8.29	1.58
Total:							
Volume of trading	15, 403, 891	4, 965, 881	892, 555	425, 145	82, 994	47, 835	21, 818, 301
Deliveries	96, 629	25, 441	12, 356	14, 979	3, 152	2, 903	155, 460
Per cent	.63	.51	1.38	3.52	3.80	6.07	.71

[1] Minor futures omitted. For the Chicago Board of Trade, the 1929 March, May, July, September, and December futures used; for the Kansas City Board of Trade, the 1929 May, July, September, and December; for the Minneapolis Chamber of Commerce, the 1929 May, July, September, October, and December; for the Duluth Board of Trade, the 1929 May, July, September, October, November, and December.

The data on deliveries given in Table 3 include redeliveries. If redeliveries were excluded, the actual amount of grain involved would be still smaller in relation to the volume of futures transactions. An earlier study made by the Grain Futures Administration indicates that the figures in Table 3 on delivery of warehouse receipts probably are more than double the amount of actual grain involved.

FUTURES AS RIGHTS TO GRAIN

Considerable emphasis has been given to a comparison of cash and futures contracts. They are unlike in form and in use, but more particularly in the latter. Cash contracts are used in the marketing of grain, while futures are used as a means of hedging and speculation. Employed either as a hedge or as a speculation, futures are rights to grain rather than grain itself. If he so desires, either buyer or seller may carry forward his contract and receive or make actual delivery. But, in fact, this is seldom done.

A legal distinction will throw additional light on this point. The law differentiates between contracts which are executed and those which are executory. The former have been completed in all particulars, and nothing remains to be done except to pay for the goods.

They are contracts of sale. The latter are only agreements to sell. One or more things must be done before the agreement can be completed. Interpreted in the light of these standards, futures contracts are executory contracts, since not all of the conditions surrounding the contract have been fulfilled. Futures trades, then, are not purchases or sales of grain; they are contracts for grain or rights to grain which contracts can later materialize in a transaction in grain, but which in all likelihood will not so materialize.

RELATION OF CASH PRICES TO FUTURES PRICES

In any extended comparison of cash and futures prices, two important characteristics become manifest. The first is that the two series are very similar in their broad movements; the second is that they are quite dissimilar in many of their minor movements. Depending therefore upon the type of price fluctuation one has in mind, and the extent to which the underlying causes of these fluctuations can be accounted for, it is possible to demonstrate either that cash prices are very closely and dependably linked to futures prices or that this relationship is a very loose and uncertain one. And from this the conclusion may be drawn either that the futures market is of real service as a hedging and market-making device or that it is of little practical value. Just how and why futures prices are related to cash prices, the closeness and dependableness of this relationship, and what factors are most likely to inject uncertainty into it, are problems to be dealt with in this section as fundamental to an understanding of the place of future trading in the marketing and merchandising of grain.

COMPARISON OF CASH AND FUTURES PRICES

In Figure 1 there is shown a comparison of cash and futures prices for wheat, corn, and oats covering the 10-year period, October, 1920, to September, 1930. The cash prices used for this chart consist of an average of the range of cash sales made on the Chicago market every other Monday.[3]

For wheat the grade of No. 2 Hard Winter was used. For corn it was necessary to use two grades, No. 3 Yellow during the early part of some years and No. 2 Yellow for the remainder of the season. For oats two grades were also used, No. 2 White and No. 3 White.

For the same dates, every other Monday, an average of the range in futures prices is shown for each of the three grains. Since more than one future is traded in at the same time, it was necessary to select some one future for each date representative of the market. For this purpose, the future having the largest amount of open commitments for each date was selected. This future is conveniently referred to as the dominant future, and the exact periods during which each future was dominant during this 10-year period are shown in the Appendix, Table 6. Roughly, the May future is used from November through April, the July future during May and the first half of June, the September future during the remainder of June, all of July and the first half of August, and the December future from August to November.

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[3] Supplied through the courtesy of the market report department of the Chicago Board of Trade.

The extent to which cash and futures prices correspond in their broad movements is clearly brought out in Figure 1. With respect to these major swings a close correspondence is shown both in the upward phase and in the downward phase. Furthermore, the 10-
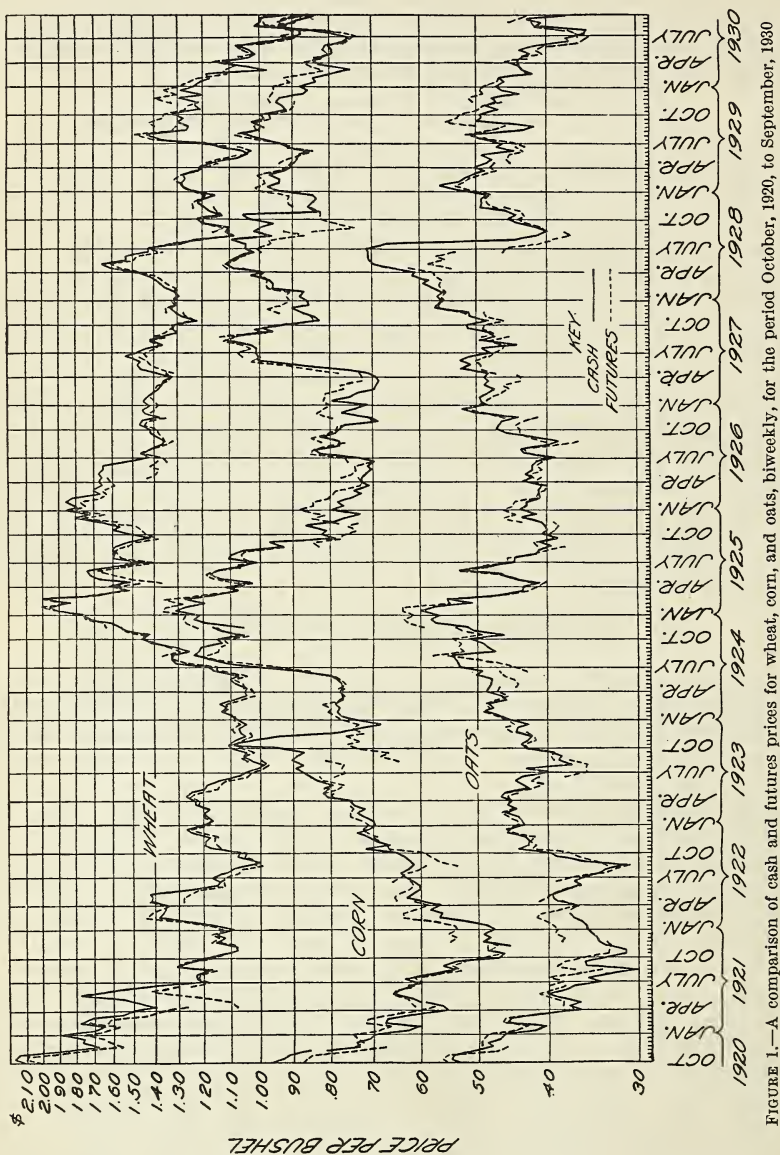
FIGURE 1.—A comparison of cash and futures prices for wheat, corn, and oats, biweekly, for the period October, 1920, to September, 1930

year period covered includes variations of unusual amplitude and duration. In order to afford a direct comparison between the three grains a ratio scale was used to plot the prices by which equal percentages of price change are shown as equal vertical distances upon the chart. It will be observed that the general trends of prices of

the three grains are similar, and particularly those of corn and oats, due to the possibility of shifting from one to the other in their use as feed grains. The percentage of price variation for the three grains is also about the same with possibly a little larger variation in corn prices than in the other two.

While cash and futures prices closely correspond in their broad movements as shown in Figure 1, they deviate considerably at particular points and for certain periods vary widely. Thus, for corn in September and October, 1923, for oats in May and June, 1928, and for wheat in May and June, 1921, the differences between cash and futures prices widened to exceed 20 cents per bushel. These deviations are easily accounted for. At these points cash prices reflected mainly the immediate demand for the remainder of the old crop while futures prices reflected an oncoming and larger new crop. For years in which the remainder of the old crop is relatively small, cash prices as a result are likely to be higher than the new-crop futures.

In addition to these differences growing out of the transition from one year's crop to another, considerable variation is due to the fact that futures prices are not represented by a continuous series of data. These breaks in the futures curve (and at a few points in the cash curve as well, growing out of a change in the grade of grain used) make difficult a close comparison with cash prices. It will be shown presently that a third factor fairly regularly causing some variation is that of a seasonal upward movement in cash prices relative to futures prices, reflecting a carrying charge.

CASH PRICES AS COMPARED WITH ADJUSTED FUTURES PRICES

To improve the basis of comparison between the two series of prices for this 10-year period and with particular reference to the minor price variations, Figure 2 has been prepared. A close comparison between cash and futures prices would require the use of cash quotations for precisely the same grade and quality of grain as those representing the futures prices. Data of this kind, however, are impossible to obtain. Futures prices reflect that grade and quality of grain most likely to be delivered upon futures contracts and do so to an increasing degree as the month of delivery approaches. It is not likely that for each date chosen cash sales will be made in this particular grade and quality. Because of the practice of mixing grain at terminal points the quality among tenderable grades most likely to be delivered upon futures contracts is one which will barely pass inspection. Cash prices, in contrast, usually reflect country-run grain and for this reason are somewhat higher for the same numerical grade.

To minimize the importance of this grade factor, the cash prices used in Figure 2 consist of an average of quotable prices prevailing each day for that grade most likely to be reflected in the futures price. Upon the Chicago market these grades for the three grains shown are usually No. 2 Hard Winter wheat, No. 3 Yellow corn, and No. 2 White oats, and quotations for these three grains were accordingly used. Quotable prices are not necessarily prices of actual sales. When sales occur they, of course, reflect these. But on days when very few cash trades are made, quotable prices represent simply an estimate of the market by competent buyers and sellers. Use of quotable prices rather than the prices of actual sales has two ad-

vantages: One is that they are available for the same grade on each
date, whereas it would be necessary occasionally to refer to different
grades in using actual prices of cash sales; the other is that the
quotable prices are likely to reflect a more uniform quality in the
grade than are quotations from actual sales.   Another reason for the
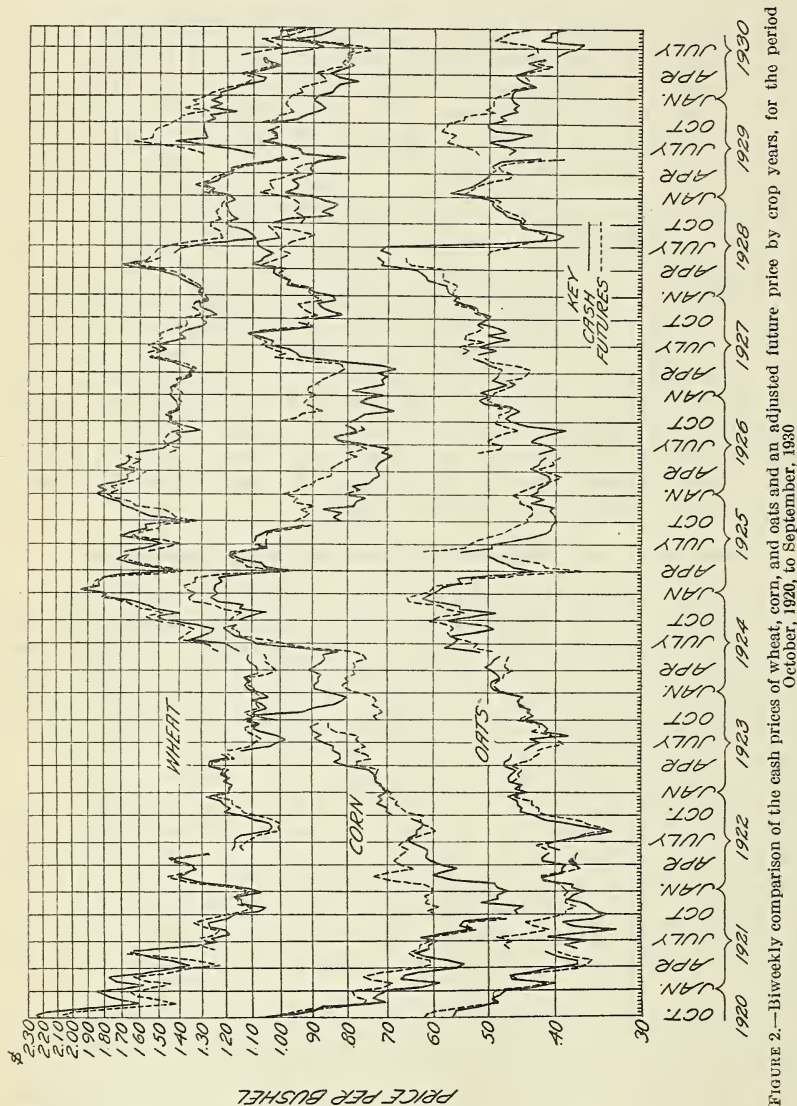
FIGURE 2.—Biweekly comparison of the cash prices of wheat, corn, and oats and an adjusted future price by crop years, for the period October, 1920, to September, 1930

use of quotable rather than actual sales prices lies in the fact that
they are available in published form as premiums or discounts relative
to a current future price, whereas prices of cash sales are quoted only
as absolute figures.[4]

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[4] See Chicago Daily Trade Bulletin, which gives premiums and discounts by grades for wheat. Also
Weekly Sheet of the Raymond News Bureau (Chicago) for wheat, corn, oats, and rye, where these pre-
miums and discounts are applied for each grade to the closing futures price each Friday.

In the form of premiums or discounts relative to the future, as for example No. 2 Hard Winter wheat 2 to 2½ cents under September, it is possible directly to compare the cash price of the day with any futures price of the day. If the September wheat future in the illustration closed at $1.18, then the range in cash prices was $1.16 to $1.15½ or an average of $1.15¾. It would be equally accurate, also, to compare cash prices with an average of the high and the low futures price of the day. But without these premiums or discounts a close comparison of prices is difficult, since the futures price prevailing at the exact time each cash trade was made is not known. In the comparison in Figure 2 closing futures prices are used and cash prices determined as premiums or discounts of these closing prices.

To overcome the difficulty of continual breaks in the data of futures prices, each crop year has been treated as a separate unit in Figure 2 and an adjustment made for certain futures within each crop year to make one continuous series. For this purpose the December futures prices for wheat and oats each year have been adjusted upward or downward by an amount equal to the average difference prevailing for a period of three weeks at the point where the shift from the December to the May future was made. Similarly, the September futures prices were adjusted by an amount equal to the combined differences between the December and the May, and the September and the December. For corn, the last crop future is the September instead of the May, and by the same process the July, May, and December futures, were adjusted to it. (Appendix, Tables 8, 9, and 10). The effect of these additions is to provide an adjusted futures price as a continuous series throughout the crop year. And for the purpose of comparing the relationship of futures to cash prices the adjustment has in no way weakened the comparison since the same changes in price remain.

Figure 2 shows the same general relationship in the broad movements in price as Figure 1. In addition, it shows that as each crop year advances the cash price usually rises relative to the futures price. This relative gain is occasioned by the cost of carrying forward actual supplies and is a characteristic that will be given fuller consideration later herein. The data for Figure 2 and for three subsequent charts, Figures 3, 4, and 5, are to be found in the Appendix, Tables 8, 9, and 10.

WHY CASH AND FUTURES PRICES MOVE SIMILARLY

Futures contracts, as defined in a preceding section, are rights to grain which if not offset by equal and opposite contracts before the month of delivery, will mature as sales or purchases of actual grain. While it is true that very few futures contracts are fulfilled by delivery, as long as the right to fulfill by delivery exists free and unobstructed so long will futures prices tend to parallel the course of cash prices. A partial analogy is to be found in the field of securities in the relation between a convertible bond and the stock for which it may be exchanged. So long as the right to convert continues unimpaired, the price of the bond will follow the share price without the necessity of any actual conversion. This point is fundamental to an understanding of the relation of future trading to cash-grain markets. The fact that futures can be changed into actual grain prevents the two from following divergent courses.

Additional light is to be had on this point through a consideration of the operations of cash-grain interests in a position to make or take

delivery upon future contracts. Suppose, for example, that in January the May wheat future should rise without a corresponding upward movement in current cash-grain prices. Such a circumstance would offer an unusual profit if the spread between the two tended to exceed greatly the cost of carrying the grain from January to May. Terminal elevators would accordingly be eager to buy cash supplies if their storage facilities would permit and sell equal amounts of the May future. The effect of such an operation, however, would tend to raise the price of cash grain and lower the price of the May future, thus bringing them back into line again. Suppose the converse of this example is assumed, i. e., that in January current cash-grain prices advance due to a temporary increase in demand and without a corresponding rise in the May future. The effect of this change, if it reaches sizable proportions, will be to encourage those holding cash grain in store to sell, and at the same time to buy back their May future, thus setting up forces which tend to check the advance in current cash prices relative to the price of the May future.

It should not be implied that operations of this kind immediately follow each maladjustment in price nor that their effect is in every case immediate and complete. The instances shown in Figures 1 and 2 in which cash and futures prices continue out of line for considerable periods of time clearly indicate that corrective forces are often slow in becoming fully effective. At times the facilities for handling grain become inadequate. During 1929 and 1930, for example, supplies of wheat at terminal points increased, and the discounts of cash under futures prices widened to unusual proportions. Because of a lack of additional storage space terminal elevators could not, however, take full advantage of this situation, despite the fact that a carrying charge of large proportions prevailed.

At times receipts at terminal markets are small in proportion to the current demand, and cash prices advance to a premium over the futures. This was the situation with respect to wheat for the crop year 1925–26, and with respect to both corn and oats for the crop year 1923–24. At the point of time reflected by the futures month it appears that supplies will probably be relatively more abundant, and for this reason futures prices do not move in line with current cash prices.. But one can not act upon this situation beyond the point of selling out immediate cash holdings. In such a situation the limiting factor is the lack of available cash supplies. A close and continuing relationship between cash and futures prices is thus dependent very largely upon available supplies at the principal market centers. Usually these supplies are sufficiently large and free of movement to permit adequate interplay of corrective forces necessary to hold cash and futures prices in their proper relation. Occasionally, however, this is not the case, and at such times deviations occur.

SEASONAL MOVEMENT OF CASH PRICES RELATIVE TO FUTURES PRICES

The factors affecting the relation of cash to futures prices vary widely in importance and in the certainty with which they occur. Most of these factors are highly uncertain both with respect to the time they may appear and their influence upon prices. The factor of carrying charges is rather more certain than other influences. Carrying grain forward involves an element of cost known in advance, and

this cost generally reflects itself in an upward trend in cash prices relative to futures prices as the crop year advances.

Figure 3 illustrates the manner and extent to which this seasonal element manifests itself in the cash-futures price relationship for wheat. The data for this chart are taken from the Appendix, Table 8. For the same day each week the amounts by which cash prices were below or above futures prices is shown by crop years for the 10-year period, 1920–21 to 1929–30. The irregular curves picture the variations in the amounts by which cash prices were below or above futures prices, the latter being used as a base and shown as a heavy horizontal line.

The futures prices used to measure these discounts and premiums consist of the adjusted series described earlier. Thus, for wheat for the crop year 1929–30, after the December and September futures had been shifted to the level of the May future, a discount of 20 cents per bushel is shown for the first week in June. By August this had increased to a discount of over 25 cents. From this point the discount began to decrease until at the end of the following May it had practically disappeared. Stating this relative change in terms of carrying charge to a hedger, the crop year 1929–30 would have yielded a gross gain of 25 cents per bushel had the cash wheat of the grade of No. 2 Hard Winter been purchased in August and a hedge of equal quantity in December wheat sold against it, assuming the hedge to have been shifted to the May future at the average difference prevailing between the two futures during the first three weeks in November.

The crop year 1929–30 was an unusual year in the amount of spread between cash and futures prices. While both futures and cash prices declined greatly during the year, the former fell more rapidly than the latter, so that relative to futures, cash prices advanced. To an almost equal extent the crop year 1920–21 shows a decline in cash prices relative to the futures prices. In the latter year a hedger long in the cash-grain market would have suffered a gross loss of over 25 cents a bushel between August and the following May in addition to his actual costs in carrying forward his supplies. For the other 8 of the 10 years shown in Figure 3 the relative changes were smaller.

There is shown for a majority of the 10 years an upward trend in cash prices relative to the futures prices from August through the following May and a downward trend during June and July. This was true for all the crop years except 1920–21, 1922–23, and 1925–26. In an effort to estimate the extent of this seasonal movement cash prices for the nine years from 1921 to 1930 were averaged, bringing together as nearly as possible identical dates. The results are shown by the curve at the bottom of Figure 3 and the data in Table 7. It will be seen that the average relative trend of cash prices was upward from August through the following May and that during June and July the trend was downward.

This seasonal variation in cash prices is due fundamentally to the fact that futures prices include a carrying charge more clearly than do cash prices. Viewed from the angle of a prospective buyer who in November wishes to acquire a supply of wheat for use the following May, two courses are possible. He may buy the May future to the amount needed and later exchange the future for the cash, or he may buy the actual grain in November and carry it forward until May. If he follows the latter course it will be necessary to purchase the cash

FIGURE 3.—Discounts and premiums of No. 2 Hard Winter wheat, Chicago, relative to adjusted wheat futures prices, for one date each week, for 10 crop years, 1920–21 to 1929–30

grain at a price enough below the price of the May future to cover the carrying cost. The competitive effect of bids by buyers is to tend to adjust cash and futures prices to levels reflecting a carrying charge.

Viewed from the angle of the seller, the problem similarly becomes one of selling the cash grain and delivering at once, or of selling the future and through the use of the future delivering at a later time. Normally, the future will need to be above the cash by an amount sufficient to provide a carrying charge in order to encourage the sale of the future. The amount by which the future exceeds the cash at any given point within a crop year should be commensurate with the period of time from that point to the maturity of the future contract. Thus, on August 1, in a winter-wheat market the September future should sell above cash wheat, the December future should sell above the September, and the May above the December by an amount proportional to the intervening periods of time. The 9-year average curve of cash prices in Figure 3 shows that this is in general accurate. But the curves by years indicate that it frequently is not true when individual years are considered. Thus, during the whole of the crop year 1925–26 cash prices ranged above futures prices, and during the year 1920–21 these premiums reached enormous proportions. An examination of the individual curves also suggests that the measure of carrying charge varies considerably within each crop year. For example, in 1926–27 a carrying charge is shown during certain portions of the year but not during others.

To make clear the reason for these variations in particular years it is necessary to describe more fully the basis of cash-grain operations. If supplies are large, with very little demand either foreign or domestic, additional receipts become a drug on the market, and cash prices widen to unusual discounts relative to futures prices. Such was the case during the crop year 1929–30. In other years, cash prices are high relative to futures prices. This was the case to a very unusual extent in 1920–21 when supplies at terminal points were short, due in part to the fact that shipping facilities were temporarily tied up. Under such conditions the terminal-elevator business becomes a hand-to-mouth affair, purchases being made only as immediate sales are found. Between these extremes, conditions afford all varieties of price relationships. Many times elevator operators buy with very little prospect of profit in carrying the grain. At such a time the principal overhead costs must be met, and if enough can be earned to cover current operating costs, or if it is believed conditions will shortly improve, additional purchases may be made.

Two additional points should be observed in Figure 3. The first is that supplies carried over from one crop year to another and hedged in the futures market are very likely to cause a loss. For winter wheat, Figure 3 shows that cash prices usually decline relative to futures prices during June and July. This is to be expected from the fact that in contracting for a new-crop future new supplies for which no carrying costs need be incurred can be used to fulfill the contract. The second point to be observed is that toward the end of May cash prices usually rise above futures prices. This premium is due to the fact that the grade of grain reflected by the futures price is usually mixed, especially that for delivery on contracts, and is of a quality barely sufficient to pass inspection as that grade. In contrast, the

cash price reflects country-run grain, and, while of the same numerical grade, is somewhat better in quality and thus commands a premium.

Figures 4 and 5 present the results of a similar comparison between cash and futures prices for corn and oats. For corn, the grade of No. 3 Yellow was used and for oats No. 2 White, the data for both charts being presented in the Appendix, Tables 9 and 10. The observations already made with respect to wheat apply with similar force to corn and oats. At the bottom of each chart, the 9-year average of weekly prices reveals a similar upward relative "swing" in cash prices as the season advances. The harvest time for corn is in the late fall, but the marketing movement from the farm is largest during December and January. It is during these two months that the widest discounts with respect to futures prices usually prevail, gradually diminishing and changing to premiums during July, August, and September. For oats, the upward seasonal movement extends from August through May and in general reveals the same trend as that for winter wheat.

FACTORS CAUSING UNEXPECTED VARIATIONS IN THE RELATION OF CASH PRICES TO FUTURES PRICES

In the comparisons of cash and futures prices shown in Figures 1 to 5, three types of price variation are to be observed. The first is the close agreement between the two series of prices when consideration is given to their major movements over a period of years. The second is the presence of a definite seasonal movement within each crop year, which is most clearly seen when a series of years are averaged. The third type of variation consists of the many minor irregularities remaining after allowance has been made for the major and the seasonal movements. In Figures 3, 4, and 5, the major movements in cash and futures prices have been removed, and only the differences between the two series are shown.

Assuming that the seasonal curves based on an average of nine years are fairly accurate, one might deduct the seasonal element from each of the individual years leaving variations which have just been referred to as minor irregularities. These would be found to include a wide variety of changes both in size and duration. It is not possible to enumerate here all of the causes responsible for these minor changes. Some of the more important have already been indicated, and a statement of these, together with a few of the factors occasionally important, will serve sufficiently to emphasize their significance.

Of outstanding importance as a cause of uncertain variations in the cash-futures relationship are the current supplies of grain at principal market centers. One reason why this supply is important is that it determines to a considerable extent the prices terminal elevators are willing to pay for cash grain as compared to futures prices. If the current supplies are large and receipts exceed shipments, storage space becomes scarce and cash discounts large. If supplies and receipts are temporarily small, the bidding will rapidly advance cash prices relative to futures prices. This point was illustrated in the preceding section. These supplies, and particularly those at terminal markets, are also important in their influence upon futures prices when a squeeze or corner is threatened. If the supplies are controlled by a few individuals, this influence upon futures becomes pronounced although it is not always felt to an equal extent in the cash market.
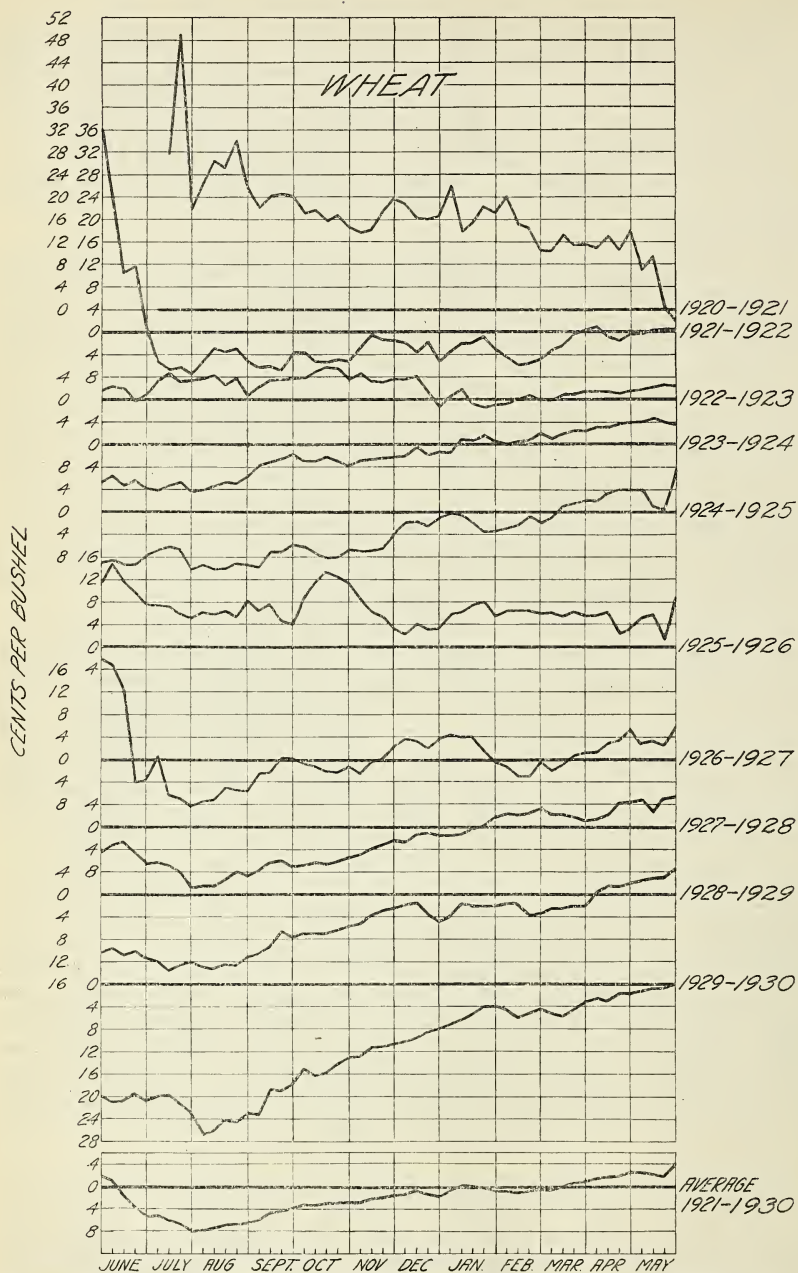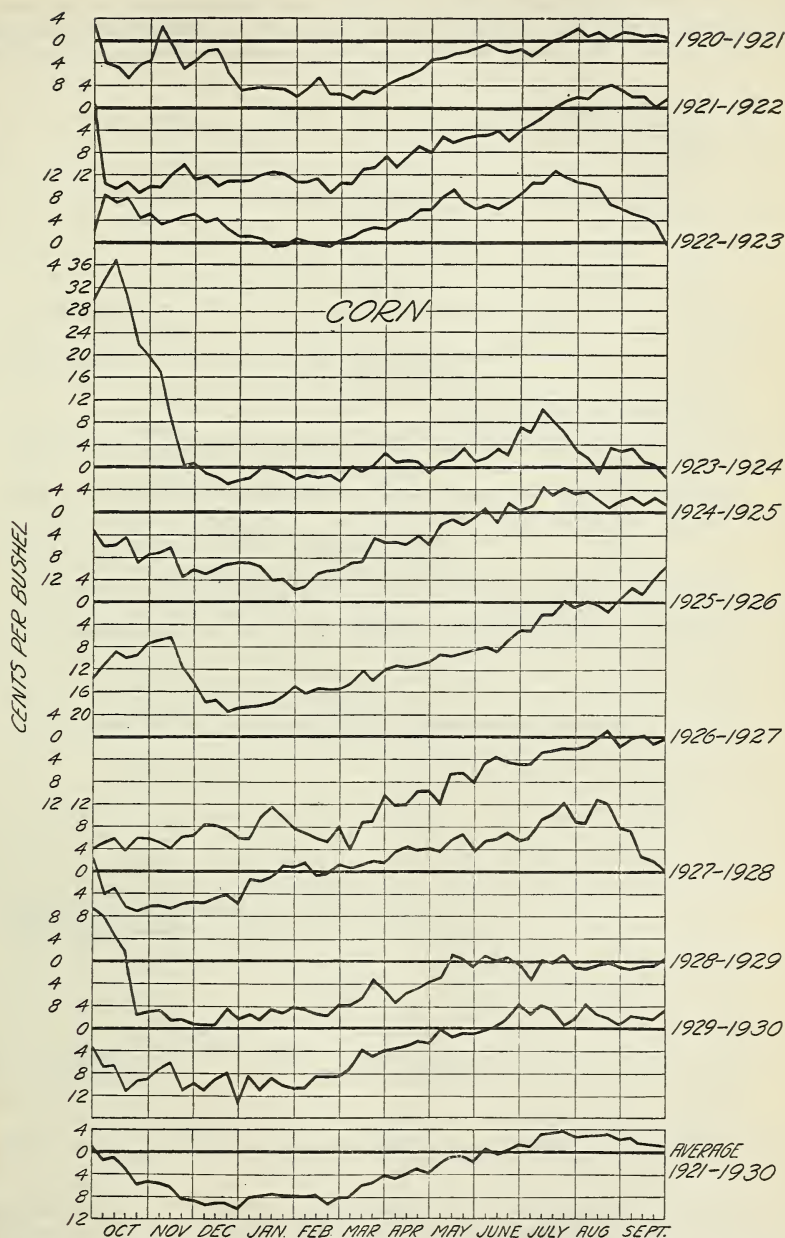
FIGURE 4.—Discounts and premiums of No. 3 Yellow corn, Chicago, relative to adjusted corn-futures prices, for one date each week, for 10 crop years, 1920–21 to 1929–30

The supplies of grain in private and public store in Chicago alone are influential to a considerable extent in determining the relation of cash to futures prices at Chicago. After an allowance has been made for seasonal trend for the years 1921 to 1930, considerable inverse relationship will be found by comparing supplies of wheat, corn, or
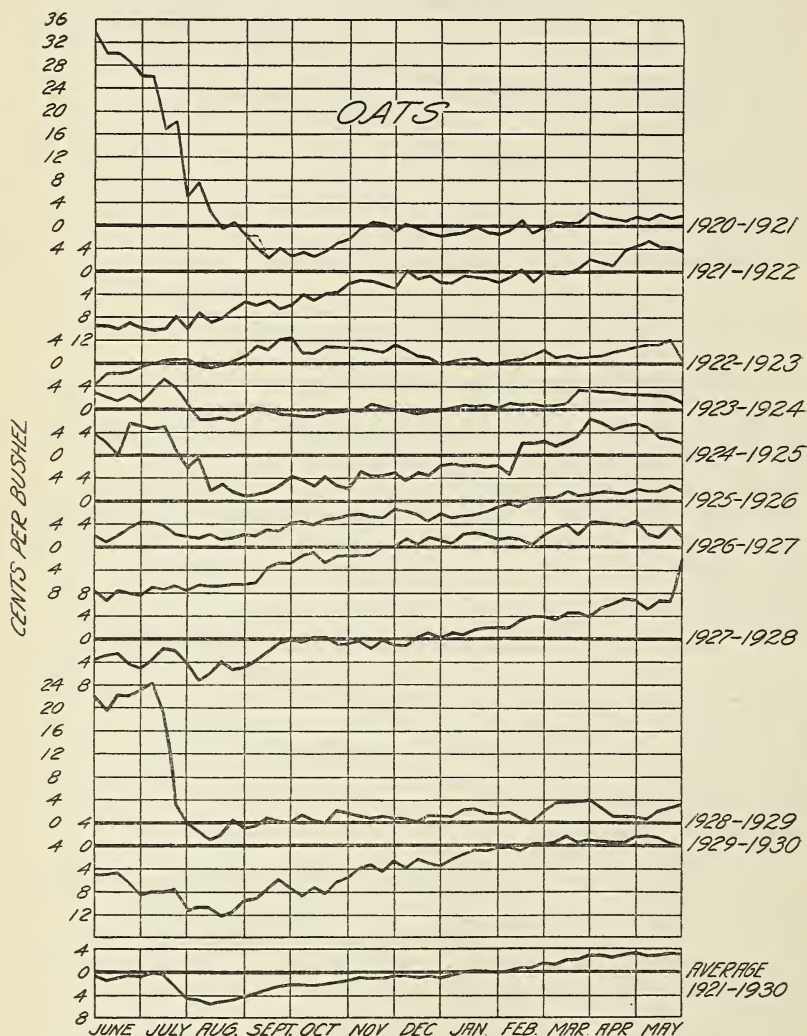
FIGURE 5.—Discounts and premiums of No. 2 White oats, Chicago, relative to adjusted oats-futures prices, for one date each week, for 10 crop years, 1920–21 to 1929–30

oats with the deviations of cash prices above or below the price of the future for corresponding dates. For years in which supplies are large at Chicago, a large carrying charge is usually present, and in years of small supplies there is little or no carrying charge. But this relation is only a general one since the control of these supplies, their quality.

and the quantity of supplies at other points are also influential factors.[5]

Of the various elements accounting for variation in the cash-futures price relationship, none is more far-reaching in its influence than the grading factor. Futures contracts are rights to grain under which the seller has the privilege of selecting the particular deliverable grade to be tendered. This fact is known to both buyer and seller at the time of contracting. It is true that relatively few deliveries are made, but the right of delivery requires that this possibility be considered. It follows that the seller, through self-interest, will aim to deliver that deliverable grade which at the time is relatively the cheapest in the cash-grain market; and the futures price, as the delivery month approaches, generally reflects this grade. This may be one grade at one time and a different grade or even a different class at another time. At Chicago, No. 2 Hard Winter wheat is the grade usually delivered. As changes occur, or rather as the likelihood of change occurs, a corresponding change in futures prices results and is noticeable in the premiums and discounts on cash grain. A good illustration of this occurred in 1925, when shipments of spring wheat for delivery at Chicago caused futures prices to cease reflecting winter wheat and to shift to a spring-wheat basis, requiring as an ultimate solution a readjustment of the differences fixed by the exchange. In all such cases temporary, though at times sizable, variations are introduced into the cash-futures spread.

If the futures price at all times reflects some one deliverable grade, its price relationship with other grades will vary as do their own price relationships with the grade which it is reflecting. For example, if the futures price in Chicago is at any given time reflecting No. 2 Hard Winter wheat, wide differences may develop between the futures price and that of No. 2 Red Winter wheat if the latter is influenced by market conditions not affecting hard winter wheat. Red winter wheat, in 1925, advanced to a premium of more than 30 cents a bushel over the futures price. Frequently, large premiums are paid for cash grain of high-protein content. If there is a strong current demand for a particular grade or quality of grain it is to be expected that it will sell at a premium. The prices of other classes and grades of grain may similarly deviate from each other and from the futures price, as cash-grain conditions change.

These deviations should not be thought of as imperfections in the cash-futures price relationship. In fact, the relation of cash to futures prices would be defective if these deviations did not occur. There is no way in which differences of this kind can be eliminated except to provide for future trading in each class of grain, and to do this would limit somewhat the breadth and continuous character of the market.

Many other specific factors might be enumerated as having occasional influences upon the relation of cash to futures prices, but in most cases these are reflected in the two important factors of supply and grade just discussed. Changes in exchange rates, in freight rates, or in the condition of grain occasionally cause a disparity of prices. Drought in the summer of 1930 caused corn prices to rise rapidly, but it did not affect cash and futures prices equally because futures prices

were affected not only by existing supplies but also by those of the on-coming new crop. This factor made itself felt through a variation in present and potential supplies. Because the markets for cash grain are widely scattered, they frequently reflect factors of purely local importance that are not likely to play any important part in futures prices, which reflect influences world-wide in character.

THE HEDGING FUNCTION

The practice of hedging is based upon the assumption that prices in the cash market will parallel those in the futures market. The measure of accuracy in this assumption was discussed in the preceding section. There it was shown that after allowance is made for seasonal trend in cash prices the two markets do conform fairly closely in their broad price movements, although for particular years and under the influence of special factors prices deviate considerably. In practice these deviations result in either decreasing or increasing the profit anticipated by a merchandiser, depending upon the character of his market position and the direction of price variation; but it is also true in practice that where hedging is consistently used on a fairly broad scale, profits or losses occasioned by these minor deviations to some extent offset each other.

A trade interest might be long in the cash-grain market and therefore desire to hedge its position to guard against possible loss from declining prices. It would do so by selling a quantity of grain futures equal to its long cash position. If cash-grain prices subsequently decline to cause a loss in the cash transaction, futures prices will also decline with a resultant profit in the futures transaction. If futures and cash prices decline by the same amount, the loss on the cash transaction will be completely offset by the gain in the futures. Similarly, if cash prices advance to cause a gain in the cash transaction, futures prices will also advance, resulting in a loss in the futures transaction, assuming again an equal movement in both cash and futures prices.

In this illustration of hedging, the cash or trade interest was assumed to be in a long position such as, for example, that of an elevator company holding grain for later sale. But it might equally well have been on the short side of the market. A milling concern, for example, may have made forward sales of flour for delivery within 90 days at definite prices without having on hand the wheat necessary to fill the orders. Here the miller runs the risk of wheat prices advancing. He would hedge his flour sales by purchases of an equivalent amount of wheat futures. If prices did then advance (or decline) his gain in one position would be offset by a corresponding loss in the other.

The theory of hedging is thus comparatively simple. There is in every case an existing risk in the cash market, viz., that prices may unexpectedly change to cause a loss. This price risk is hedged by setting up an equal and offsetting risk in the futures market.

SHIFTING OF PRICE RISKS

An illustration involving definite quantities and prices may give additional insight into the nature of hedging. Assume, for example, that on January 20, Elevator Co. A buys 5,000 bushels of

No. 3 mixed corn on the Chicago market at 82 cents per bushel and hedges this purchase by a sale to a speculator of 5,000 May corn futures at 85 cents per bushel. The result of this future sale is to offset or "even" the hedger's long position in the cash market and by the same process to make the speculator long in the futures market.

If, subsequently, corn prices decline to an equal extent in the cash and futures market, what the hedger loses on his long cash position is regained through his short position in the futures market. Similarly, if prices advance the gain which the hedger would have obtained upon his cash holdings must be sacrificed through his short position in the futures market. Viewed in this light, hedging becomes a process of assuring a smaller but more certain gain in lieu of a possible larger but more uncertain one. By following this plan less attention need be given to the broad major movements in price, any one of which, if adverse, might seriously cripple a firm's finances, and more attention can be given to the minor relative price changes occurring daily between the cash and futures market.

EXTENT OF HEDGING IN GRAIN

If every interest engaging in the production and handling of grain and in the manufacture of grain products, hedged in the futures market, the process would extend from the farmer to the retailer. Not all of these interests, however, follow the practice of hedging. It is very seldom that a farmer hedges his long cash position either before or after harvest, partly because of a lack of knowledge concerning the nature and methods of future trading and partly because of an inclination to carry unusual risks for the possible profit to be derived. At the opposite end of the merchandising process there is an equal lack of hedging. Retailers of grain products as a rule do not hedge, partly because their operations are not often on a sufficiently large scale, partly because the price of their product has ceased to maintain a close relation to the price of futures, and partly because of the fact that losses sustained from unusual variations in grain prices constitute only a part, and oftentimes only a small part, of the total costs involved in their business. Therefore such losses usually can be merged with other expense items and borne as a part of the routine of operation. This statement applies also, though with somewhat less force, to jobbers, wholesalers, and manufacturers of products prepared from grain. These include baking companies, feed companies, a wide range of intermediate dealers, and many food-products companies. A few of the last named group do, however, follow the practice of hedging.

Between the farmer and those manufacturing and distributing the finished products of grain are a number of interests that do regularly follow the practice of hedging. These include the larger interior and terminal market elevator companies, shippers, exporters, and millers. Here again considerable variation is to be found in practice. Hedging is generally practiced by the larger concerns among the millers and particularly by those in the Minneapolis area. The practice is less general among the smaller and independent companies. Similarly, the larger elevator and shipping interests generally practice hedging, but among the smaller country elevators, and particularly among the independents and cooperatives, the practice is much less

common. In a recent study by the Grain Futures Administration,[6] replies returned from over 1,200 country elevators show that approximately 44 per cent never hedge and that of the remaining 56 per cent one-half do not maintain a consistent policy of hedging.

HEDGING NET POSITIONS ONLY

The extent to which any trade interest must deal in futures in order to be completely hedged depends upon the amount and nature of its commitments. If, for example, a flour-milling company should have on its books at a given time unfilled orders for flour equivalent to 500,000 bushels of wheat, and should have at the same time stocks on hand (including wheat in transit and bought to arrive) amounting to 500,000 bushels, it is clear that these positions offset each other and that no hedging need be done in the futures market. If, however, forward orders should exceed by 300,000 bushels the supplies purchased, it would be necessary to buy this net amount in the futures market. If, on the other hand, stocks on hand at any time exceed unfilled orders, sales of futures equal to the net difference would be necessary if the company is to be entirely hedged.

The process of hedging, therefore, consists in keeping one's market position in balance at all times through the purchase or sale of futures. As sales and purchases of grain are made, futures are bought or sold in amounts sufficient to cover differences so that the net trade position in cash grain is offset by an equal and net position in futures.

SEASONAL AND YEARLY VARIATIONS IN HEDGE REQUIREMENTS

This balancing process between cash and futures requires much more extensive transactions in certain seasons as well as in certain years than in others. These variations in positions are occasioned mainly by variations in the movement and demand for grain and grain products. The movement of grain in the United States, being largest in the fall and winter and gradually declining until the close of the crop year, necessitates the carrying forward of varying supplies by elevators and other interests. This process in turn necessitates varying futures positions. Similarly, variations in the broader movements in supplies from year to year occasion corresponding increases or decreases in the size of hedge commitments.

These variations in hedge position are also affected, of course, by the volume of forward sales. Supplies are acquired as they are offered but are disposed of as the market situation permits. Under the present competitive system shippers and processors must accept these conditions as they develop and it is because of these conditions that a hedging market is desirable. Stated differently, if market supplies were always balanced by forward orders there would be no need for a hedging market.

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[6] MEHL, J. M. HEDGING IN GRAIN FUTURES. U. S. Dept. Agr. Circ. 151, 104 p., illus. 1931.

TABLE 4.—*The aggregate long, the aggregate short, and the combined net position of all hedging accounts in corn futures having a position of 500,000 bushels or more, Chicago Board of Trade, for specified dates, 1924 to 1930*

[In thousands of bushels, i.e., 000 omitted]

Date	Aggregate position of all accounts		Net position of all accounts		United States visible [1]	Date	Aggregate position of all accounts		Net position of all accounts		United States visible [1]
	Long	Short	Long	Short			Long	Short	Long	Short	
1924						**1928**					
Dec. 31	--------	11,675	--------	11,675	18,573	Mar. 31	1,845	23,130	--------	21,285	43,856
						June 30	2,365	7,230	--------	4,865	16,008
1925						Sept. 29	11,419	6,911	4,508	--------	6,791
Mar. 31	--------	15,554	--------	15,554	34,010	Dec. 31	6,227	7,922	--------	1,695	17,146
June 30	--------	3,225	--------	3,225	15,021						
Sept. 30	915	3,020	--------	2,105	5,470	**1929**					
Dec. 31	--------	8,020	--------	8,020	17,861	Mar. 30	2,577	15,900	--------	13,323	34,150
						June 29	1,515	5,377	--------	3,862	12,748
1926						Sept. 30	1,980	1,825	155	--------	4,197
Mar. 31	930	20,420	--------	19,490	36,485	Dec. 31	3,195	2,270	925	--------	7,643
June 30	2,415	19,320	--------	16,905	30,333						
Sept. 30	--------	12,210	--------	12,210	17,381	**1930**					
Dec. 31	--------	25,565	--------	25,565	34,512	Mar. 31	2,715	4,864	--------	2,149	23,532
						June 30	2,880	1,205	1,675	--------	6,825
1927						Sept. 30	579	1,665	--------	1,086	4,684
Mar. 31	1,606	36,410	--------	34,804	47,244						
June 30	1,535	27,582	--------	26,047	34,427						
Sept. 30	2,955	21,025	--------	18,070	23,687						
Dec. 31	2,005	16,705	--------	14,700	27,034						

[1] As reported to the Chicago Board of Trade on the Saturday nearest the date shown.

Table 4 and Figure 6 illustrate these seasonable and annual movements for corn for a period of six years covering the crops 1924 to 1929, inclusive. In Table 4, all of the hedging accounts having a position of 500,000 bushels or more have been totaled to show the aggregate of the long accounts, the aggregate of the short accounts, and the net position for the group. These data are shown at quarterly intervals and were compiled from the daily records of the Grain Futures Administration. They represent the principal hedging accounts in corn upon the Chicago Board of Trade, the leading corn futures market. It will be seen that the net position of the hedging accounts in corn is on the short side of the market during most of the period.

In Figure 6 this net short futures position is compared for corresponding dates with the visible supply of corn,[7] the latter representing stocks in store at prominent grain centers in the United States. In their general movements the two series vary inversely. As the visible supply increases an increased short futures position is shown, and as it decreases the short position also decreases. The relationship shown is only an approximate one, due in part to the fact that hedging accounts at Chicago of less than 500,000 bushels and all hedging accounts at other futures markets are excluded, and in part to the fact that forward orders in corn are not deducted from the visible supply. The data are, however, sufficiently complete to demonstrate the seasonal and yearly variations in hedging position and the principal cause of these variations, namely, the variations in commercial supplies. Receipts of corn at interior and terminal points are largest during December and January, so that the visible supply each year

[7] As reported to the Chicago Board of Trade.

reaches a maximum usually during the latter part of February, to decline gradually until fall.

Table 5, prepared from data compiled by the Millers' National Federation, shows by semiannual and quarterly dates the aggregate and net futures positions carried by its members as a hedge against their combined trade position. The reports to the Millers' National Federation come from mills manufacturing between 50 and 60 per cent of the wheat flour produced in the United States, and constitute, therefore, a representative sample of the milling industry. What was observed with respect to corn should also be noted with respect to the milling trade in wheat, namely, there is from season to season as well as from year to year a wide variation in hedge requirements.
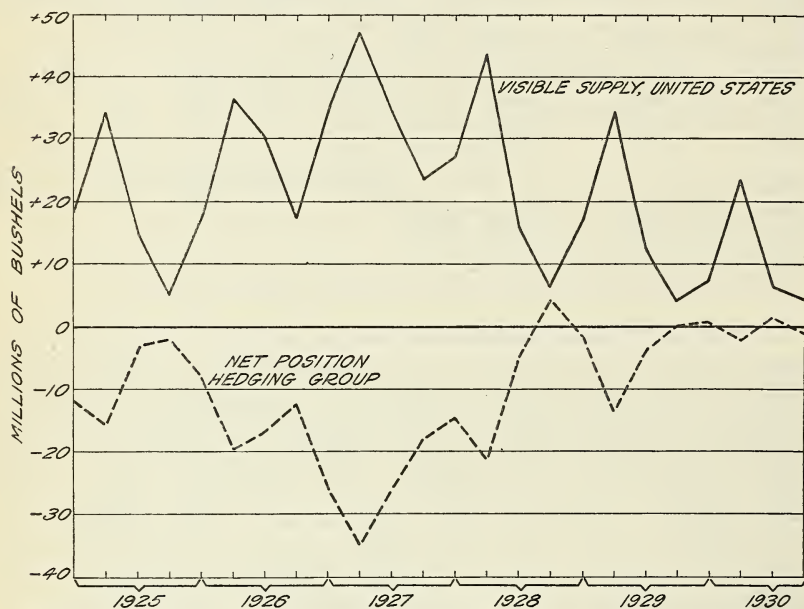
FIGURE 6.—A comparison of the United States visible supply of corn with the combined net position in corn futures of the leading hedging accounts upon the Chicago Board of Trade, for quarterly dates, for six years, December 31, 1924, to September 30, 1930

Between December 31, 1925, and September 30, 1926, for example, the futures position of the entire group changed from a net short commitment of 13,809,000 bushels to a net long commitment of 25,725,000 bushels, a total change of over 39,000,000 bushels. This shift in the hedging position from the short to the long side of the market was occasioned by forward sales of flour greatly exceeding cash-grain purchases, mill stocks of wheat increasing from 60,000,000 bushels on December 31, 1925, to 83,000,000 on September 30, 1926, while forward sales increased from 40,000,000 to 113,000,000 bushels. Similar variations in futures positions are to be found for other periods, usually consisting of a shift from the short to the long side of the market between June and September, growing out of forward orders received. As these orders are filled and additional supplies acquired the futures position again shifts to the short side of the market.

TABLE 5.—*The combined aggregate long, the combined aggregate short, and the combined net futures position of all mills reporting to the Millers' National Federation, for specified dates, 1925 to 1930*

[In thousands of bushels, i. e., 000 omitted]

Date	Aggregate futures position		Net futures position		Date	Aggregate futures position		Net futures position	
	Long	Short	Long	Short		Long	Short	Long	Short
1925					**1928**				
Jan. 31	415	18,684	----------	18,269	Mar. 31	11,359	11,199	160	----------
June 30	679	4,808	----------	4,129	June 30	5,005	12,140	----------	7,135
Dec. 31	826	14,635	----------	13,809	Sept. 30	33,735	7,468	25,267	----------
					Dec. 31	15,079	13,324	1,755	----------
1926									
June 30	11,204	10,550	654	----------	**1929**				
Sept. 30	35,123	9,398	25,725	----------	Mar. 31	7,643	12,293	----------	4,650
Dec. 31	18,736	9,148	9,588	----------	June 30	12,326	11,131	1,195	----------
					Sept. 30	15,038	20,946	----------	5,908
1927					Dec. 31	11,506	19,041	----------	7,535
Mar. 31	10,891	7,286	3,601	----------					
June 30	4,528	9,337	----------	4,809	**1930**				
Sept. 30	23,067	6,956	16,111	----------	Mar. 31	10,567	9,609	958	----------
Dec. 31	12,317	10,569	1,748	----------	June 30	14,707	5,846	8,861	----------
					Sept. 30	21,728	26,869	----------	5,141

It is of interest to note in connection with the data in Table 5 that for each date shown some of the mills were long in the futures market and some were short. In other words, within certain limits this group supplied its own hedging market. Close observation will show, however, that this offsetting is only partial at many times, and for the entire period is very uncertain. The data presented in Tables 4 and 5 throw some light upon the extent to which it is possible to maintain an adequate hedging market in the absence of trading that is purely speculative in character.

INTEREST OF HEDGERS LIES IN MERCHANDISING PROFIT ONLY

It would appear that if a firm follows the policy of consistently hedging in order to eliminate possible loss from any adverse movement of prices it must sacrifice the possibility of gain from any favorable price movements. With respect to possible profits from the broad market movements this is true. Merchandisers who follow the practice of hedging, however, attempt to derive a smaller but more certain profit from other sources, such as storing, mixing, conditioning, and distributing grain on a wholesale basis. This involves, or it should if the business is to be maintained at a profit, the purchase of grain at a given price and its resale at a relatively better price. Similarly, in the manufacture of flour or other grain products, it is planned to sell the finished product at a figure enough higher than the purchase price to include manufacturing costs plus a merchandising profit.

In this process, however, the profit derived is an indirect rather than a direct one. Thus, a terminal elevator may buy grain at $1.10 and sell it later at $1.05 and still make a profit if the future sold as a hedge declines more rapidly than the cash price. If the hedge in this instance were placed at, say, $1.13 and later removed at $1.05 the net gain would be 3 cents per bushel. Similarly, if prices advanced the profit derived would equal the increase in the price of the cash wheat, less the loss caused by the increase in the price of

the futures sold in the hedging operations. Grain merchants who consistently hedge are thus primarily interested in relative prices. They continually attempt to buy supplies at the lowest possible premium or the greatest possible discount relative to the prevailing futures prices.

The usual seasonal upward movement in cash prices relative to futures prices greatly aids in obtaining this object. Suppose, for example, that an elevator manager is able to buy country-run hard winter wheat in the fall at an average figure of 2 cents under the December future for No. 2 grade and 4 cents under the future for No. 3, and an occasional car at a larger discount due to some particular defect. As these cars are purchased the December futures will be sold against them. Let us suppose that, as is usually the case, the May future is 3 or 4 cents per bushel above the December. The hedger will then follow closely the difference between the December and the May, and at a time when the "spread" is as large as it appears likely to be at any later time he will shift the hedge to the latter month by buying in the December futures and selling the May futures. This exchange may have been made at an average difference of 3¼ cents per bushel. He now has his cash grain hedged at a level 3¼ cents better than before, which will in part or wholly pay his cost of carrying the grain forward. By conditioning and mixing his supplies he may now prepare shipments to other points or for export as No. 2 grade, bought at an average cost of 3 cents under December or 6¼ cents under May. He now has the alternative of selling in the cash markets or of delivering upon his future contract which has been sold as a hedge. Transactions in the cash market are ordinarily preferable, due to the possibility of selling at a premium.

SPREADING OPERATIONS OF HEDGERS

Successful hedging is thus dependent in a large measure upon the basis of purchase and sale of cash grain relative to futures prices. Continual care must be exercised in making bids or offers to see that they are executed on as favorable a basis as possible. This requires the continual following of futures prices, both with reference to prevailing premiums or discounts in the cash market and with reference to changing relationships between futures and between markets.

At any given time a hedger has the opportunity of placing his hedge in two or more futures in the nearest market or of placing it in one or more futures markets at some distant point. If, for example, purchases of wheat on the Chicago market are being made in early August, the hedges may be placed on that exchange in its September future, or in the December future, or even in the March or May future of the following year, though as a rule they would be placed either in the September or the December. His choice will depend upon his judgment regarding prevailing differences between these futures and the differences which he believes will later prevail. Suppose December wheat to be 1 cent above September wheat. It may appear that temporarily September is too high relative to December. Hedges will then be placed in the September future. If later the spread widens to 2¼ cents the hedger may shift his hedges in whole or in part from the September to the December future. And it is entirely possible that the hedges may be shifted back to the

September if the margin between the futures narrows again. Similarly, among the larger firms hedges may be shifted from time to time from one exchange to another where prevailing differences in prices appear to warrant the change.

Operations of this character combine hedging with a form of spreading, and while involving a speculative element are frequently engaged in by larger firms following a hedging policy. If successful they serve to improve the basis of purchase, or, stated in another way, they enable the firm either to overbid its competitors in buying or to underoffer them in selling. That there are possibilities of large profits from this type of operation is clear from a consideration of relative price movements over any considerable period of time. If, however, large profits are possible, so also are large losses where spreads are subject to price movements opposite to those expected.

BASIS GAINS OR LOSSES

While hedging provides a measure of protection against possible losses resulting from the larger price movements, it is by no means a complete guarantee of profit to those consistently using it. In the grain trade, as elsewhere, profits are dependent upon good management and general business conditions. For certain years the course of prices and conditions of business generally are such that profits are easily made; in others, very few concerns are able to prevent losses. These changes in business conditions are often reflected in the relation of cash to futures prices and in the relation of one future to another. In this way they vitally affect the profits or losses of firms that follow a hedging policy.

The more important of these relative price factors were described in the preceding section dealing with the relation of cash to futures prices. They include the two outstanding factors of deliverable supplies at principal markets and grade differences. Both of these elements continually disturb prevailing cash-futures relations and, in doing so, modify either the prospective or the actual profit or loss on hedged transactions. Other and independent elements originating in a wide variety of sources similarly serve as disturbing factors. Cash markets are widely scattered and frequently subject to influences purely local in character which do not affect to an equal degree the futures prices upon the larger central markets. Trade and world news frequently affect futures markets differently than the cash markets. The character of trading upon the floor of the exchange, especially if on a large scale, also frequently affects futures prices and cash prices differently.

These uncertain elements are continually present in the market. They are factors with which the hedger must reckon. To some extent the basis or relative gains and losses they occasion offset each other over a period of time, though this is not likely to be the case where the volume of business is small. To some extent they may be avoided through a timely shifting of hedge positions from one future or market to another, though here again success is in part dependent upon the size of operations. To the extent that they can not be offset or avoided and are a net loss, they must be absorbed as a part of the costs of operation. While factors causing losses to hedgers on one side of the futures market result in gains to

other hedgers holding opposite positions, they nevertheless inject an element of uncertainty as regards hedging results and to that extent are undesirable.

INDIRECT BENEFITS OF HEDGING

The general practice of hedging and the facilities available for hedging by the larger merchants and elevator companies operate indirectly to the benefit of the smaller trade interests. It is the general practice of terminal elevators to send out to the country to-arrive bids for various quantities and grades of grain. These bids are based directly upon prevailing futures prices with an adjustment for the elements of time, position, freight, and grade. They are made, however, with the knowledge that acceptances may be promptly hedged upon the futures market; and were this not possible the bidders would certainly be much more reluctant to freely bid for supplies. The effect of the futures market as a means of hedging is, therefore, to broaden materially the cash-grain market at country points. Stated another way, in the absence of a futures market bids to the country would be freely made only upon a wider price margin than that which now prevails.

In a measure, at least, the effect of the present system of hedging extends back to sales made by the farmer. This is the case when farmers "store" their grain with country elevators to be sold later. It is the case also when the country elevator buys a farmer's crop at a definite price with the understanding that it may be delivered any time during the coming month. This is not an uncommon method of purchase where roads are in poor condition for hauling or where the rush of work will not permit immediate delivery. If country elevators are willing to make purchases on these terms only because such purchases may immediately be offset by track, to-arrive, or futures sales, then indirectly the benefit of hedging is being extended back as far as the initial sales by farmers.

THE MARKET-MAKING FUNCTION

Future trading plays an important part in the marketing and merchandising of grain in two ways: (1) Through its use in hedging and (2) through its relation to prices. The latter consists of a composite of causes and effects which may be conveniently defined as the market-making function of future trading, though in some respects this definition is not altogether satisfactory.

FACTORS COMMON TO CASH AND FUTURES PRICES

The principal factors determining cash prices are also the principal factors determining futures prices. To understand this point clearly it is necessary to recall why cash prices and futures prices parallel each other in their broad movements. A futures contract is a right to actual grain and under normal conditions may be converted into grain through the desire of either buyer or seller. The knowledge that this is possible, together with occasional actual spreading operations between cash grain and futures, serves to hold the two series in approximate alignment. It follows that the more important market factors affecting cash-grain prices must, through this right of conversion, also similarly affect futures prices.

These factors, operating through modern methods of communication, are frequently world-wide in character. Changes in demand caused by changes in consumer-purchasing power, changing personal tastes, and the influence of competing alternative products are continually reflected in both cash and futures prices. Because the demand for grain is fairly inelastic, the factor of supply is likely to be of even greater importance at any given time. Reports are currently received from every important point giving estimates of supplies in sight, movements to and from principal points, and the so-called invisible supplies at interior and local points. Of even greater importance during the growing season are the factors influencing potential supply, such as weather, plant diseases, and insect pests. Through the influence of these basic factors cash and futures prices advance or decline, currently reflecting the changing trade situation.

MARKET OPINION DETERMINES IMPORTANCE OF PRICE FACTORS

Price movements can take place only through a realignment of values in the minds of those in a position to buy or sell. A drought in Kansas may be highly important as a price factor, but unless it causes a scaling upward of active bids and offers it will not cause an adjustment in price.

This fact is a commonplace of every market but is of particular importance upon organized futures markets. Competition upon organized exchanges is extremely keen. Here are focused a multitude of opinions, reflecting a wide range of convictions and of purchasing power to enforce these convictions. If opinions are based upon information derived from reliable sources and enforced by market positions which are adequately financed, they will in turn produce a level of prices in line with prevailing basic conditions. But if they are opinions of individuals who are poorly informed, or who are easily·influenced by the actions of others, or who trade beyond their means, or who buy and sell in sufficient volume to influence prices, prevailing market prices may depart far from their proper level. Because of the easy access to these organized markets, either to buy or to sell, they are much more sensitive to purely trading influences than are markets of a less centralized type. Important movements in cash and futures prices, therefore, are the result of important changes in basic trade factors but only as interpreted or used by those who actually trade in the market.

CHANGES IN FUTURES PRICES PRECEDE CHANGES IN CASH PRICES

While futures and cash prices both reflect the same basic information they do not as a rule reflect it at exactly the same instant. Instead, the futures market usually receives and reflects changing market conditions before the cash market. The reason for this is in the nature of the functions of the two markets. In the futures market the initiative is taken by speculators interested solely in probable price changes, while in the cash market the lead is taken by trade interests less directly affected by important price movements.

Because of this single interest by the speculative group, every effort is made to obtain timely and significant market information. Elaborate private wire systems extend from the larger market centers to all important trading points throughout the United States and

Canada, connecting home offices of futures commission firms with their branch offices and with their correspondents. Private telephones, in turn, connect the central offices directly with the floor of the exchange. News agencies, crop forecasters, and special services supplement individual effort in collecting and promptly forwarding from points throughout the world every variety of information likely to have market importance.

The leadership of futures prices is clearly demonstrated in present-day methods of cash purchase and sale at terminal points. When a car of grain is offered for sale on the exchange floor bids are commonly made in relation to the price of the current future. Thus a buyer after examining the sample of a car of wheat might bid "2¼ under May," which, translated into a definite price, would mean that he was willing to pay 2¼ cents under the prevailing price of the May future. If May wheat at that instant were selling at $1.14, then if accepted the purchase price would be $1.11¾. Frequently these bids are kept open for awhile, in which case, if the May price changed, a correspondingly higher or lower cash price would be obtained. The premiums or discounts above or below current futures prices paid for cash grain are themselves subject to change from time to time because of many factors. But these changes are infrequent and small as compared to the larger general-market movements; therefore each price variation in the futures market from minute to minute throughout each trading session is reflected by similar movements in the cash market.

This method of bidding for or offering cash grain greatly facilitates the placing and removal of hedges. Whether the grain is bought before or after an advance in price is immaterial if the basis of purchase remains the same. The practice of hedging makes possible this method of trading in the cash market.

INFLUENCE OF FUTURE TRADING UPON CASH-GRAIN PRICES

While changes in futures prices generally precede changes in cash prices and are used by cash-grain interests as the basis of their quotations, changes in the futures market are not the causes of changes in cash prices. Both cash and futures prices in their broad movements are regulated by the same fundamental information, but because the facilities for obtaining this information have been built around the futures market, its effect is first apparent in the futures market, and then in the cash market.

Some qualification in this statement is necessary. The market information regularly collected under the present system is for the immediate use of the futures market. The question may then be appropriately raised whether in the absence of a futures market the same information would be collected for the cash market, and particularly whether it would be applied with the same degree of promptness. If not, cash prices might be somewhat different from what they are under present conditions. In this indirect sense future trading, through its price structure, may cause a difference in the level of cash prices.

A futures market also offers facilities for trading not to be found upon the usual cash markets. These include convenient wire connections, trading rooms and quotations, and news and gossip,

together with a contract equally adaptable to selling short as to buying for long account. Because of these facilities there has been built up a body of traders many times the size of a market composed purely of cash interests. The consensus of opinion of this larger group may differ at any given time from the opinion which would prevail among cash-trade interests in its absence. If so, the futures market is again influencing cash-grain prices.

There is ample evidence that speculative trading of itself does at times exert a definite market influence upon prices. It has done so since the beginning of exchange trading, whenever corners have been attempted or threatened. Such is the case also whenever one or a few individuals either buy or sell an unduly large amount of futures within a short period of time. The effect of such trading is to break down resistance and to carry prices at least temporarily beyond the limits they otherwise would have reached. Markets move in immediate response to active buying and selling. In a purely cash market the volume of buying and selling is limited by the amount of the commodity and the rapidity of turnover. But in a futures market about the only effective limits are the margin requirements. The buying of futures or the short selling of futures bears no dependable relation to the supply of the commodity either in quantity or turnover. Thus are made possible operations of large proportions which greatly weaken market resistance.

While future trading is not the principal determinant of cash prices it does at all times exert a very definite influence upon such prices. Cash and futures prices are determined by the same fundamental market factors, but the interpretation of these factors is mainly by the futures market.

Whether at any given time or over any given period prices are higher or lower than they would be in the absence of future trading, is a question which can not be answered since it is impossible to know what the level of prices would have been under a purely cash market. But it is definitely known that future trading of itself can influence prices, and it is, therefore, highly important that the conditions surrounding this market permit free interplay of normal supply and demand forces. Deliverable supplies and the conditions of delivery should at all times be ample and unrestricted. The character of the information being circulated should be as far as possible accurate and significant. The type of trading and trading practices permitted should be of a character best suited to maintain prices in line with current conditions in the trade.

STRUCTURE OF GRAIN PRICES

In discussing the way in which market factors are reflected in futures prices and, in turn, in cash prices, no distinctions have been made regarding the particular futures used, the location of the market, or the grades of grain involved. It is clear that these and other minor factors must be taken into account in order accurately to reflect ultimate values.

At any given time trading in the futures market is centered in some one month which has been referred to as the dominant future. Table 6 shows the periods during which each future in wheat, corn, and oats was dominant on the Chicago Board of Trade during the 10-year period from October, 1920, to September, 1930. Thus, the December

future in wheat is usually the most important one from August until November. During this period active trading is centered in this future, which is replaced in November by the May future and so on to the July and September futures. As a result of centering the trading in some one month, the influence of current market factors is usually reflected first in the price of this future. Other futures, either near by or more distant, are then adjusted to this dominant future, due allowance being made for deliverable and total supplies and for any abnormal trading factor affecting some one future to the partial or total exclusion of the others.

The futures price, particularly that of the dominant future, is based upon that grade and quality of grain which at any given time appears most likely to be delivered upon the contract. This is the basic level for cash prices and that from which adjustments are made for quality, for location, and for the time element. An illustration will aid in understanding these necessary adjustments. Suppose that on November 1, December wheat, Chicago, is selling for $1.15 and that this price refers to a quality of No. 2 Hard Winter wheat which will just meet inspection requirements as No. 2. With reference to quality only, and disregarding for the moment the elements of position and time, purchases of hard winter wheat that instant would be at $1.15 plus or minus any necessary adjustment for grade or quality. No. 2 country-run might bring one-half cent over the December or $1.15½; No. 1 might sell at 2½ cents over; while No. 4 might sell at 5 cents under.

In addition to any adjustment necessary for grade, a corrective for the element of time must be added. Normally, wheat is worth more on December 1, as reflected by the future contract, than on November 1, the time of delivery upon the cash contract. Assuming in the illustration that this element of carrying charge amounts to 1 cent per bushel, each cash quotation would need to be lowered by this amount.

Bringing the third element, that of location, into the cash price requires a further adjustment reflecting freight rates and handling charges. The Chicago futures price assumes delivery from approved warehouses, except in certain emergencies when track delivery is permitted. It follows that purchases made or bids sent out, basis Chicago, to other points will require an adjustment in which the place and manner of delivery are sharply defined. Thus, if freight charges from Clinton, Iowa, to Chicago were 7 cents, the price of No. 2 Hard Winter wheat on track Clinton in the illustration just given would be $1.15 plus one-half cent for country-run, minus 1 cent carrying charge, minus 7 cents freight, or $1.07½. This might be carried back another step, allowing 4½ cents for handling cost and profit to the country elevator, and arriving at a bid price of $1.03 to the farmer.

In briefly outlining the structure of grain prices it is not possible to include in detail the myriad minor elements and adjustments found in actual trading. No account has been taken of intermarket prices between two points such as Chicago and Minneapolis. Each of these markets is the center of a price structure in part independent and in part dependent upon the other. Each interior cash market is also in a measure an independent market and subject to purely local conditions. The relative quantities of grain within each grade, the demand for particular qualities of grain, problems in billing, storing, insuring, and handling cause many and at times very wide adjustments in cash

prices. These adjustments, however, should not obscure the fact that the starting point is the futures price upon the central market, and that the futures price will continue to be the basis so long as this market continues to serve as the focus of fundamental factors affecting supply and demand and so long as free interplay continues between the futures market and the cash markets.

SUMMARY

The purpose of the present study has been to examine the relation of future trading to trading in cash grain. If the practice of trading in futures is to be justified upon economic grounds, it must be on the basis of its usefulness to the cash-grain markets. Two functions in particular are frequently emphasized: (1) The market-making function in which the futures market serves to enlarge trading interest and to direct the course of cash prices; and (2) the hedging function in which futures are used by cash interests as a means of minimizing the possibility of loss from adverse major movements in price.

Whether these functions are of genuine service or not depends upon their effectiveness in actual operation. If futures prices maintain a close and continuing relationship to cash prices and at the same time reliably reflect fundamental trade conditions, there can be no question of the economic usefulness of future trading. The present study is not an attempt to answer these questions but only to throw some light upon them.

Cash and futures contracts are closely linked together in price through the right of delivery. Futures contracts are contracts to sell according to the terms specified in the agreement and do not become contracts of sale unless fulfilled by actual delivery. In practice very few contracts are ultimately so fulfilled, the great majority being offset at some point prior to or during the month of delivery. But because of the possibility of ultimate delivery these contracts will not deviate in price far from the price prevailing in the cash market. They are in fact rights to actual grain and bear a relation to the latter similar to the relationship between a convertible bond and the stock for which it may be exchanged.

While the cash and futures markets are held in general alignment through this right to convert, certain elements may be expected regularly to cause some seasonal deviation and numerous other elements will cause minor changes in the relation of the two markets. A comparison between cash and futures price changes for wheat, corn, and oats over a period of 10 years reveals a very definite average upward swing in cash prices relative to futures as the season advances. But the amount of this seasonal movement varies widely from year to year and from week to week, reflecting changes in deliverable supplies as well as in total supplies, in receipts and shipments, in the condition of supplies, available storage space, shipping conditions, and many other current market factors. These are the factors with which the hedger is most concerned.

By hedging cash commitments through counterbalancing futures transactions, firms that market and merchandise grain are able to minimize their risk incident to major movements in price. At the same time, they plan to benefit from the upward seasonal movement of cash prices relative to futures and if possible from the small and

uncertain relative price changes constantly occurring. If a profit can not be derived from this latter source, it is hoped that the total relative losses will at least be offset by the aggregate relative gains. Success in hedging thus largely depends upon the maintenance of a normal and dependable relationship between cash and futures prices.

Because trade in futures reaches much larger proportions than that in cash grain and, more particularly, because speculators follow the market with a single interest in profit from fluctuations in price, special effort is made by those trading in futures to obtain every variety of market information. For this purpose elaborate wire systems, trading facilities, and news-gathering agencies are employed which are not duplicated by the cash markets. And for this reason the futures markets are the first to receive and reflect current trade gossip and information. The cash market depends upon the futures market as a basis for bids and in the placing of hedges. Thus, the sequence of change is from factors of market importance through futures prices to cash prices. The trade in futures, however, does not determine prices in the cash market. The same general information accounts for the level of cash prices and for the level of futures. But in reaching the cash market it is subject to the interpretation and trading conditions prevailing upon the futures market.

It follows from this that a double responsibility rests upon the futures market in its interpretation of crop and market conditions. If these are accurately and fairly interpreted, sound judgment in the speculative market will be rewarded, and cash prices in turn will reflect prevailing trade conditions. But, if through poorly informed speculation, through dissemination of misleading information, or through the sheer force of large-scale speculative operations the futures market poorly and inaccurately interprets basic conditions, the result will be an artificial and distorted level in cash as well as futures prices.

In this respect the futures market serves as the gateway to the entire price structure. Upon it are focused the important forces of supply and demand. To properly interpret these, every effort should be made to maintain free interplay between the futures market and the cash market. Every effort should be made to prevent its facilities from becoming instruments of manipulation, either through excessive speculation or through the circulation of false or misleading rumors, or of news designed to affect artificially the level of futures prices. It is only in the absence of influences of this kind that future trading can be justified from an economic standpoint and can serve fully the varied interests of the grain trade.

APPENDIX

TABLE 6.—*Period of dominance,[1] based upon open commitments, of each of the various grain futures from October 1, 1920, to September 30, 1930*

Future	Wheat		Corn		Oats	
	From—	To—	From—	To—	From—	To—
1920 December____	Oct. 1, 1920[2]	Dec. 23, 1920[3]	Oct. 1, 1920[2]	Nov. 15, 1920[3]	Oct. 1, 1920[2]	Nov. 15, 1920[3]
1921						
May_____	Dec. 24, 1920[3]	Apr. 24, 1921	Nov. 16, 1920[3]	Apr. 17, 1921	Nov. 16, 1920[3]	Apr. 19, 1921
July_____	Apr. 25, 1921	June 20, 1921	Apr. 18, 1921	June 12, 1921	Apr. 20, 1921	May 4, 1921
September___	June 21, 1921	Aug. 15, 1921	June 13, 1921	Aug. 19, 1921	May 5, 1921	Aug. 1, 1921
December____	Aug. 16, 1921	Oct. 19, 1921	Aug. 20, 1921	Oct. 23, 1921	Aug. 2, 1921	Oct. 24, 1921
1922						
May_____	Oct. 20, 1921	Apr. 25, 1922	Oct. 24, 1921	Apr. 14, 1922	Oct. 25, 1921	May 2, 1922
July_____	Apr. 26, 1922	June 23, 1922	Apr. 15, 1922	June 11, 1922	May 3, 1922	June 19, 1922
September___	June 24, 1922	Aug. 10, 1922	June 12, 1922	Aug. 14, 1922	June 20, 1922	Aug. 15, 1922
December____	Aug. 11, 1922	Nov. 5, 1922	Aug. 15, 1922	Nov. 5, 1922	Aug. 16, 1922	Oct. 16, 1922
1923						
May_____	Nov. 6, 1922	Apr. 10, 1923	Nov. 6, 1922	Apr. 15, 1923	Oct. 17, 1922	May 2, 1923
July_____	Apr. 11, 1923	June 24, 1923	Apr. 16, 1923	June 11, 1923	May 3, 1923	June 12, 1923
September___	June 25, 1923	Aug. 16, 1923	June 12, 1923	Aug. 20, 1923	June 13, 1923	Aug. 21, 1923
December____	Aug. 17, 1923	Nov. 12, 1923	Aug. 21, 1923	Nov. 2, 1923	Aug. 22, 1923	Oct. 15, 1923
1924						
May_____	Nov. 13, 1923	Apr. 27, 1924	Nov. 3, 1923	Apr. 29, 1924	Oct. 16, 1923	May 2, 1924
July_____	Apr. 28, 1924	June 11, 1924	Apr. 30, 1924	June 17, 1924	May 3, 1924	June 10, 1924
September___	June 12, 1924	Aug. 14, 1924	June 18, 1924	July 14, 1924	June 11, 1924	Aug. 3, 1924
December____	Aug. 15, 1924	Oct. 31, 1924	July 15, 1924	Oct. 28, 1924	Aug. 4, 1924	Oct. 2, 1924
1925						
May_____	Nov. 1, 1924	Apr. 23, 1925	Oct. 29, 1924	Apr. 2, 1925	Oct. 3, 1924	Apr. 23, 1925
July_____	Apr. 24, 1925	June 11, 1925	Apr. 3, 1925	June 9, 1925	Apr. 24, 1925	June 7, 1925
September___	June 12, 1925	Aug. 6, 1925	June 10, 1925	Aug. 18, 1925	June 8, 1925	Aug. 13, 1925
December____	Aug. 7, 1925	Oct. 21, 1925	Aug. 19, 1925	Nov. 30, 1925	Aug. 14, 1925	Nov. 16, 1925
1926						
May_____	Oct. 22, 1925	Apr. 29, 1926	Dec. 1, 1925	Apr. 21, 1926	Nov. 17, 1925	Apr. 26, 1926
July_____	Apr. 30, 1926	June 29, 1926	Apr. 22, 1926	June 21, 1926	Apr. 27, 1926	June 24, 1926
September___	June 30, 1926	Aug. 15, 1926	June 22, 1926	Aug. 10, 1926	June 25, 1926	Aug. 5, 1926
December____	Aug. 16, 1926	Nov. 15, 1926	Aug. 11, 1926	Nov. 4, 1926	Aug. 6, 1926	Nov. 21, 1926
1927						
May_____	Nov. 16, 1926	Apr. 29, 1927	Nov. 5, 1926	Apr. 21, 1927	Nov. 22, 1926	Apr. 27, 1927
July_____	Apr. 30, 1927	June 7, 1927	Apr. 22, 1927	June 8, 1927	Apr. 28, 1927	June 10, 1927
September___	June 8, 1927	Aug. 17, 1927	June 9, 1927	Aug. 21, 1927	June 11, 1927	Aug. 15, 1927
December____	Aug. 18, 1927	Nov. 27, 1927	Aug. 22, 1927	Nov. 25, 1927	Aug. 16, 1927	Nov. 27, 1927
1928						
May_____	Nov. 28, 1927	Apr. 2, 1928	Nov. 26, 1927	Apr. 17, 1928	Nov. 28, 1927	May 1, 1928
July_____	Apr. 3, 1928	June 8, 1928	Apr. 18, 1928	June 25, 1928	May 2, 1928[4]	June 18, 1928
September___	June 9, 1928	Aug. 7, 1928	June 26, 1928	Aug. 8, 1928	June 19, 1928[4]	Aug. 19, 1928
December____	Aug. 8, 1928	Nov. 18, 1928	Aug. 9, 1928	Dec. 6, 1928	Aug. 20, 1928[4]	Nov. 12, 1928
1929						
May_____	Nov. 19, 1928	Apr. 16, 1929	Dec. 7, 1928	Apr. 23, 1929	Nov. 13, 1928	May 6, 1929
July_____	Apr. 17, 1929	June 12, 1929	Apr. 24, 1929	June 23, 1929	May 7, 1929	May 27, 1929
September___	June 13, 1929	July 23, 1929	June 24, 1929	July 28, 1929	May 28, 1929	July 24, 1929
December____	July 24, 1929	Nov. 11, 1929	July 29, 1929	Nov. 25, 1929	July 25, 1929	Nov. 12, 1929
1930						
May_____	Nov. 12, 1929	Apr. 27, 1930	Nov. 26, 1929	Apr. 8, 1930	Nov. 13, 1929	May 1, 1930
July_____	Apr. 28, 1930	June 16, 1930	Apr. 9, 1930	June 13, 1930	May 2, 1930	June 16, 1930
September___	June 17, 1930	Aug. 3, 1930	June 14, 1930	July 22, 1930	June 17, 1930	June 26, 1930
December____	Aug. 4, 1930	Sept 30, 1930[2]	July 23, 1930	Sept. 30, 1930[2]	June 27, 1930	Sept. 30, 1930[2]

[1] As open commitment figures were not reported until July 9, 1923, dates indicated prior to this date are based on volume of trading. See Table 15, Report of Grain Futures Administration, 1924.
[2] Not complete.
[3] Estimated.
[4] New oats future.

TABLE 7.—*Seasonal trend in cash prices relative to future prices for wheat, corn, and oats, Chicago, being an average of discounts or premiums for corresponding weeks for nine crop years, 1921–1930*

[In cents per bushel]

Month	Week	No. 2 Hard Winter wheat		No. 3 Yellow corn		No. 2 White oats	
		Decimals	Eighths	Decimals	Eighths	Decimals	Eighths
June	1	+1.875	+1⅞	−0.375	−⅜	−0.833	−⅞
	2	+1.181	+1⅛	−.431	−⅜	−1.375	−1⅜
	3	−1.667	−1⅝	+.278	+¼	−1.055	−1
	4	−3.694	−3¾	+1.208	+1¼	−.514	−½
July	5	−5.417	−5⅜	+.958	+1	−.792	−¾
	6	−5.25	−5¼	+3.528	+3½	−.069	−⅛
	7	−6.640	−6⅝	+3.611	+3⅝	−.236	−¼
	8	−6.611	−6⅝	+3.819	+3⅞	−2.389	−2⅜
	9	−7.986	−8	+2.861	+2⅞	−4.582	−4⅝
	10	−7.861	−7⅞	+2.986	+3	−4.750	−4¾
August	11	−7.50	−7½	+2.986	+3	−5.569	−5⅝
	12	−6.931	−6⅞	+3.093	+3⅛	−5.264	−5¼
	13	−6.708	−6¾	+2.264	+2¼	−4.958	−5
	14	−6.653	−6⅝	+2.583	+2⅝	−4.458	−4½
September	15	−6.111	−6⅛	+1.444	+1½	−3.958	−4
	16	−4.597	−4⅝	+1.278	+1¼	−3.056	−3
	17	−4.361	−4⅜	+1.111	+1⅛	−2.583	−2⅝
	18	−3.875	−3⅞	+.472	+½	−2.306	−2¼
	19	−3.278	−3¼	−1.347	−1⅜	−2.278	−2¼
October	20	−3.347	−3⅜	−.958	−1	−2.389	−2⅜
	21	−3.111	−3⅛	−2.847	−2⅞	−2.167	−2⅛
	22	−2.986	−3	−5.736	−5¾	−1.833	−1⅞
	23	−2.847	−2⅞	−5.236	−5¼	−1.611	−1⅝
November	24	−2.806	−2¾	−5.514	−5½	−1.042	−1
	25	−2.153	−2⅛	−6.278	−6¼	−1.208	−1¼
	26	−2.042	−2	−8.306	−8¼	−1.194	−1¼
	27	−1.50	−1½	−8.569	−8⅝	−.847	−⅞
December	28	−1.194	−1¼	−9.208	−9¼	−.806	−¾
	29	−.708	−¾	−9.111	−9⅛	−.917	−⅞
	30	−1.431	−1⅜	−9.000	−9	−.750	−¾
	31	−1.861	−1⅞	−10.028	−10	−1.083	−1⅛
	32	−.75	−¾	−8.903	−8⅞	−.764	−¾
January	33	+.181	+⅛	−8.583	−8⅝	−.028	0
	34	−.028	0	−8.264	−8¼	+.181	+⅛
	35	−.083	−⅛	−8.347	−8⅜	+.042	0
	36	−.694	−¾	−8.625	−8⅝	−.014	0
February	37	−.736	−¾	−8.736	−8¾	+.194	+¼
	38	−1.083	−1⅛	−8.625	−8⅝	+.819	+⅞
	39	−.861	−⅞	−8.944	−9	+.833	+⅞
	40	−.389	−⅜	−7.958	−8	+1.556	+1½
March	41	−.514	−½	−7.833	−7⅞	+1.542	+1½
	42	+.028	0	−6.069	−6⅛	+2.236	+2¼
	43	+.819	+⅞	−5.500	−5½	+2.181	+2⅛
	44	+1.042	+1	−4.264	−4¼	+3.014	+3
April	45	+1.514	+1½	−4.736	−4¾	+2.875	+2⅞
	46	+1.875	+1⅞	−4.153	−4⅛	+2.611	+2⅝
	47	+1.944	+2	−3.181	−3⅛	+3.042	+3
	48	+2.653	+2⅝	−3.528	−3½	+3.417	+3⅜
	49	+2.667	+2⅝	−2.125	−2⅛	+2.972	+3
May	50	+2.375	+2⅜	−.889	−⅞	+2.917	+2⅞
	51	+2.014	+2	−.736	−¾	+3.250	+3¼
	52	+4.236	+4¼	−1.569	−1⅝	+3.181	+3⅛

TABLE 8.—*Average cash price of No. 2 Hard Winter wheat compared with the closing futures price for each Monday, Chicago Board of Trade, from July 19, 1920, to September 29, 1930*

[In cents per bushel]

Date	Average closing price 1920 December future	Average closing price 1921 May future	Adjusted future price [1]	Average cash price [2]	Cash premium or discount [3]
1920					
July 19	259½		249¾	277½	+27¾
27	235¼		225½	274½	+49
Aug. 2	213½		203¾	221½	+17¾
9	232⅛		222⅜	244¾	+22⅜
16	236⅜		226⅝	253⅜	+26¾
23	228⅜		218⅜	243⅝	+25¼
30	233		223¼	253½	+30¼
Sept. 7	241⅛		231⅜	253	+21⅝
13	249⅛		239⅜	257⅝	+18¼
20	236⅞		230⅛	250⅜	+20¼
27	223⅝		213⅞	234⅜	+20½
Oct. 4	195¼		185¼	205¾	+20¼
11	207¾		198	215⅛	+17⅛
18	211⅝		201⅞	219⅛	+17¾
25	199⅝		189⅞	205⅝	+15¾
Nov. 1	209⅞		200⅛	216⅝	+16⅜
8	184⅜		174⅝	189½	+14½
15	184		174¼	188	+13¾
22	160¼		150½	164¾	+14¼
29	156⅝		146⅞	164⅝	+17¾
Dec. 6	179½		169⅝	189⅛	+19½
13	168¾		159	177¾	+18¾
20	170½	161⅛	160¾	177	+16¼
27	169	158⅞	158⅞	175	+16⅛
1921					
Jan. 3		171½	171½	188	+16½
10		168¼	168¼	190¼	+22
17		169⅜	169⅜	183⅛	+13¾
24		161⅜	161⅜	176⅞	+15½
31		148⅛	148⅛	166⅝	+18½
Feb. 7		144⅞	144⅞	162⅛	+17¼
14		159¼	159¼	179⅜	+20¼
21		161⅞	161⅞	176⅞	+15
28		156⅝	156⅝	171⅛	+14½
Mar. 7		159⅛	159⅛	169⅝	+10½
14		146⅝	146⅝	157⅛	+10½
21		141⅞	141⅞	155⅜	+13½
28		143⅜	143⅜	154⅞	+11½
Apr. 4		138⅛	138⅛	149⅝	+11½
11		128⅜	128⅜	138⅜	+10
18		124⅛	124⅛	137⅛	+13
25		125⅞	125⅞	136⅜	+10½
May 2		134⅜	134⅜	148⅝	+14¼
9		138⅜	138⅜	145⅜	+7
16		146½	146½	155⅝	+9½
23		167½	167½	168	+½
31		187	187	185	-2

Date	1921 September future	1921 December future	Adjusted future price	Average cash price	Cash premium or discount
June 6	116⅝		123	159½	+36½
13	127⅝		134	158⅞	+24⅞
20	120¼		126⅝	137⅞	+10¾
27	123⅜		130	141⅝	+11⅝

Date	Average closing price 1921 September future	Average closing price 1921 December future	Adjusted future price [1]	Average cash price [2]	Cash premium or discount [3]
1921					
July 5	115¾		122⅛	122⅝	+½
11	118⅛		124½	119⅛	-5⅜
18	127⅛		133½	126⅝	-6⅞
25	123⅝		130	123⅜	-6⅜
Aug. 1	124⅝		131	123⅜	-7⅝
8	122⅛	125⅛	128½	123⅛	-5⅜
15	124⅝	126⅜	130¾	127⅞	-2⅞
22	116⅞	118¼	122⅝	119⅛	-3½
29		123⅜	127⅜	124¾	-3
Sept. 6		129⅜	133¾	128⅜	-5⅜
12		129⅛	133½	127⅛	-6⅜
19		127⅞	132¼	126⅛	-6⅛
26		124⅝	129	122¼	-6¾
Oct. 3		118⅜	122¾	119	-3¾
	1922 May future				
10	115⅞	111⅛	115½	111¾	-3¾
17	113⅞	109⅞	113⅞	108⅜	-5½
24	112⅝	107⅞	112⅝	106⅞	-5½
31			112⅝	107⅜	-5
Nov. 7	108		108	102¾	-5¼
14	109½		109½	106⅝	-2⅞
21	111		111	110½	-½
28	117¾		117¾	116⅜	-1⅜
Dec. 5	115⅛		115⅛	113½	-1⅝
12	113¼		113¼	111¼	-2
19	114⅝		114⅝	110⅞	-3¾
27	116¼		116¼	114½	-1¾
1922					
Jan. 3	107⅞		107⅞	102¾	-5½
9	111½		111½	108⅛	-3½
16	111⅜		111⅜	109⅜	-2
23	115⅝		115⅝	113⅝	-2
30	119¾		119¾	119	-¾
Feb. 6	128⅜		128⅜	125⅛	-3¼
14	138½		138½	134	-4½
20	146⅜		146⅜	140⅜	-6
27	147⅛		147⅛	141⅜	-5⅜
Mar. 6	143⅛		143⅛	138⅛	-5
13	132⅜		132⅜	129⅛	-3¼
20	138⅜		138⅜	136⅛	-2¼
27	132⅞		132⅞	132⅝	-¼
Apr. 3	133⅜		133⅜	133⅞	+½
10	133⅝		133⅝	134⅝	+1
17	140⅝		140⅝	139⅝	-1
24	145¾		145¾	144¼	-1½
May 1	141½		141½	141⅜	+⅛
8	136⅞		136⅞	137⅛	+¼
15	142⅞		142⅞	142⅝	-¼
22	133½		133½	133	-½
29	118¾		118¾	118¼	-½

See text, p. 13, for method of adjustment.

[2] The average of premiums or discounts paid, applied to the closing price of the future upon which they were based.

[3] The adjusted future price subtracted from the average cash price, the plus (+) sign indicating a premium and the minus (−) sign a discount.

TABLE 8.—*Average cash price of No. 2 Hard Winter wheat compared with the closing futures price for each Monday, Chicago Board of Trade, from July 19, 1920, to September 29, 1930*—Continued

[In cents per bushel]

Date	1922 September future	1922 December future	Adjusted future price	Average cash price	Cash premium or discount
1922					
June 5	113⅜	------	113½	115¼	+1¾
12	110⅛	------	110	112¼	+2¼
19	110¾	------	110⅝	112½	+1⅞
26	112⅞	------	112¾	112⅜	−⅜
July 3	116⅞	------	116¾	117⅝	+⅞
10	111⅜	------	111¼	114¾	+3½
17	111⅞	------	111¾	116⅝	+4⅞
24	107¼	------	107⅛	110¼	+3⅛
31	105¾	------	105⅝	109	+3⅜
Aug. 7	105⅝	106⅝	105½	109⅛	+3⅝
14	101½	102	101⅜	105½	+4⅛
21	100⅞	102⅜	101¼	103¾	+2½
28	------	104⅜	103¼	107⅛	+3⅞
Sept. 5	------	101¾	100⅝	101¼	+⅝
11	------	101⅞	100¾	103	+2¼
18	------	105⅝	104½	107⅝	+3⅜
25	------	104	102⅞	106⅜	+3½
Oct. 2	------	104½	103⅜	107	+3⅝
9	------	107¼	106⅛	109⅞	+3¾
16	------	112¼	111⅛	116⅛	+5
23	------	111¼	110⅛	115⅞	+5¾
	1923 May future				
30	113⅛	115	113⅞	119½	+5⅝
Nov. 6	115¾	116	114⅞	118⅝	+3¾
13	115	116¼	115	119½	+4½
20	116¾	------	116¾	120⅛	+3⅜
27	113¾	------	113¾	117	+3¼
Dec. 4	115¾	------	115¾	119⅜	+3⅝
11	120¼	------	120¼	123⅞	+3⅝
18	125⅛	------	125⅛	129⅛	+4
26	125¼	------	125¼	126½	+1¼
1923					
Jan. 2	118½	------	118½	117	−1½
8	117¾	------	117¾	118½	+¾
15	119	------	119	120⅞	+1⅞
22	115⅞	------	115⅞	114⅞	−1
29	116⅛	------	116⅛	114⅝	−1½
Feb. 5	119⅞	------	119⅞	118⅞	−1
13	123⅜	------	123⅜	122½	−⅞
19	120¼	------	120¼	120¾	0
26	117¼	------	117¼	118	+¾
Mar. 5	118¾	------	118¾	118¾	0
12	120¼	------	120¼	120⅛	−⅛
19	121	------	121	121¾	+¾
26	118⅜	------	118⅜	119⅜	+1
Apr. 2	120½	------	120½	121⅞	+1⅜
9	123¾	------	123¾	125⅛	+1⅜
16	124⅛	------	124⅛	125½	+1⅜
23	124¾	------	124¾	125⅞	+1⅛
30	122½	------	122½	124⅛	+1⅝
	1923 September future				
May 7	116⅜	------	116⅜	118⅛	+1¾
14	117⅞	------	117⅞	120⅛	+2¼
21	117¾	------	117¾	120⅜	+2⅝
28	115½	------	115½	117⅞	+2⅜

Date	1923 December future	1923 September future	Adjusted future price	Average cash price	Cash premium or discount
1923					
June 4	------	108⅜	117⅝	111	−6⅝
11	------	109¼	118½	112⅞	−5⅝
18	------	106⅜	115⅝	108¼	−7⅜
25	------	104⅜	113⅝	107¼	−6⅜
July 2	------	103¼	112½	104⅝	−7⅞
9	------	103½	112¾	104⅝	−8⅛
16	------	96½	105¾	98⅜	−7⅜
23	------	98¾	108	101¼	−6¾
30	------	96¾	106	97½	−8½
Aug. 6	------	96¾	106	97¾	−8¼
13	104⅜	101	110¼	102⅞	−7⅜
20	104	99⅞	109⅛	102⅜	−6¾
27	107½	103⅛	112¾	105⅞	−6⅞
Sept. 4	105¾	------	111	105¼	−5¾
10	106	------	111¼	107½	−3¾
17	102	------	107¼	104⅛	−3⅛
24	104⅜	------	109⅝	107⅛	−2½
Oct. 1	106⅝	------	111⅞	110⅛	−1¾
8	110	------	115¼	112¼	−3
15	108	------	113¼	110¼	−3
22	105⅝	------	110⅝	108⅜	−2¼
29	105¾	------	111	108	−3
		1924 May future			
Nov. 5	106½	111⅛	111⅜	107⅝	−3¾
12	102½	107⅝	107⅝	104¾	−2⅞
19	102⅜	108½	108½	105⅜	−2¾
26	------	108	108	105⅝	−2⅜
Dec. 3	------	110⅝	110⅝	108⅜	−2¼
10	------	109⅛	109⅛	107	−2⅛
17	------	109⅜	109⅜	109⅛	−¼
24	------	106½	106½	104½	−2
31	------	107⅞	107⅞	106⅜	−1½
1924					
Jan. 7	------	108⅝	108⅝	107⅛	−1½
14	------	108½	108½	109½	+1
21	------	108	108	108¾	+¾
28	------	109¼	109¼	110¾	+1½
Feb. 4	------	112⅜	112⅜	112⅝	+¼
11	------	111¾	111¾	111¾	0
18	------	109⅝	109⅝	110⅜	+½
25	------	110⅜	110⅜	111⅛	+¾
Mar. 3	------	111½	111½	113½	+2
10	------	109⅞	109⅞	110⅞	+1
17	------	106½	106½	108½	+2
24	------	102⅜	102⅜	105⅜	+2½
31	------	102¼	102¼	104¾	+2½
		1924 September future			
Apr. 7	------	102⅝	102⅝	105⅝	+3
14	------	101⅝	101⅝	104⅝	+3
21	------	103⅞	103⅞	107⅜	+3½
28	------	102⅞	102⅞	106⅞	+4

TABLE 8.—*Average cash price of No. 2 Hard Winter wheat compared with the closing futures price for each Monday, Chicago Board of Trade, from July 19, 1920, to September 29, 1930*—Continued

[In cents per bushel]

Date	1924 September future	1924 May future	Adjusted future price	Average cash price	Cash premium or discount
1924					
May 5	--------	104	104	108	+4
12	--------	104	104	108½	+4½
19	--------	104½	104½	108½	+4
26	--------	106¼	106¼	109¾	+3½
June 2	105½	--------	115⅞	106⅝	−9¼
9	105⅜	--------	115¾	106¾	−9
16	115⅝	--------	126	117½	−8½
23	115¼	--------	125⅝	116¼	−9⅜
30	116¾	--------	127⅛	117¾	−9⅜
July 7	113¼	--------	123⅝	116	−7⅝
14	123⅛	--------	133½	126¾	−6¾
21	125⅝	--------	136	129¾	−6¼
28	134¼	--------	144⅝	138¼	−6⅜
Aug. 4	131⅝	--------	142	131⅞	−10⅛
		1924 December future			
11	126⅝	130¼	137	127¾	−9¼
18	130⅝	135½	141	130⅞	−10⅛
25	124	129	134⅞	124¾	−10⅛
Sept. 2	--------	127⅞	133¾	124⅝	−9⅛
8	--------	127⅝	133½	124¼	−9¼
15	--------	134¼	140⅝	130½	−9⅝
22	--------	132⅛	138	130⅞	−7⅛
29	--------	140⅞	146¾	139⅝	−7⅛
Oct. 6	--------	149½	155⅜	149¾	−5⅝
14	--------	146¾	152⅝	146½	−6⅛
20	--------	145½	151⅜	144	−7⅜
	1925 May future				
27	149¾	144¾	150¼	142¼	−8
Nov. 3	145¾	139¾	145⅝	137½	−8⅛
10	160¼	153¾	160¼	153½	−6¾
17	160½	--------	160½	153½	−7
24	163½	--------	163½	156⅝	−6⅞
Dec. 1	160⅞	--------	160⅞	154½	−6⅜
8	164	--------	164	160¼	−3¾
15	168¼	--------	168¼	166⅜	−1⅞
22	172	--------	172	170¼	−1¾
29	178¾	--------	178¾	176¼	−2½
1925					
Jan. 5	174⅛	--------	174⅛	173⅛	−1
12	184⅞	--------	184⅞	184⅝	−¼
19	190⅝	--------	190⅝	189⅝	−½
26	196⅜	--------	196⅜	194⅜	−2
Feb. 2	199½	--------	199½	195⅜	−3⅜
9	190⅞	--------	190⅞	187⅜	−3½
16	184⅝	--------	184⅝	181⅝	−3
24	187½	--------	187½	185	−2½

Date	1925 May future	1925 September future	Adjusted future price	Average cash price	Cash premium or discount
1925					
Mar. 2	196¾	--------	196¾	196	−¾
9	183¾	--------	183¾	181¾	−2
16	164¾	--------	164¾	163¾	−1
23	169⅞	--------	169⅞	170⅞	+1
30	146¾	--------	146¾	148¼	+1½
Apr. 6	146⅜	--------	146⅜	148⅜	+2
13	156⅝	--------	156⅝	158⅝	+2
20	150½	--------	150½	154	+3½
27	144⅝	--------	144⅝	148⅝	+4
May 4	161¾	--------	161¾	165¾	+4
11	159⅝	--------	159⅝	163⅝	+4
18	169⅜	--------	169⅜	170⅛	+¾
25	171⅞	--------	171⅞	172⅜	+½
June 1	--------	157⅜	154⅞	162¾	+7⅞
8	--------	162⅛	159¼	171⅛	+11⅞
15	--------	150¾	148	162⅞	+14⅞
22	--------	152¼	149½	160⅞	+11⅜
29	--------	142⅛	139⅜	149	+9⅝
July 6	--------	141⅝	138⅞	146½	+7⅝
13	--------	153⅞	151⅛	158½	+7⅜
21	--------	154¼	151½	153⅞	+2⅜
27	--------	148½	145¾	151⅝	+5⅞
		1925 December future			
Aug. 3	157⅝	157⅞	155⅛	160⅜	+5¼
10	163½	165¼	162½	168¾	+6¼
17	158	159⅝	156½	162⅜	+5⅞
24	158¾	--------	157¼	163¾	+6½
31	153⅛	--------	151⅝	156⅞	+5¼
Sept. 8	152½	--------	151	159¼	+8¼
14	149⅜	--------	147⅞	154⅜	+6½
21	151⅞	--------	150⅜	158⅛	+7¾
28	136	--------	134½	139	+4½
Oct. 5	135¾	--------	134¼	138¼	+4
		1926 May future			
13	144½	143⅞	142⅝	151⅝	+9
19	144⅝	142¼	142¼	153⅝	+11⅜
26	145½	143⅝	143⅝	157	+13⅜
Nov. 2	--------	144⅝	144⅝	157⅛	+12½
9	--------	143⅞	143⅞	155⅜	+11½
16	--------	149⅜	149⅜	157⅞	+8½
23	--------	155¾	155¾	161⅞	+6⅛
30	--------	161⅝	161⅝	167¼	+5⅝
Dec. 7	--------	175⅝	175⅝	178¾	+3⅛
14	--------	163¾	163¾	166	+2¼
21	--------	161⅜	161⅜	165⅝	+4¼
28	--------	178½	178½	181⅝	+3⅛
1926					
Jan. 4	--------	182¾	182¾	186	+3¼
11	--------	175¼	175¼	181¼	+6
18	--------	174¾	174¾	181	+6¼
25	--------	171¾	171¾	179¼	+7½

TABLE 8.—*Average cash price of No. 2 Hard Winter wheat compared with the closing futures price for each Monday, Chicago Board of Trade, from July 19, 1920, to September 29, 1930*—Continued

[In cents per bushel]

Date	1926 September future	1926 May future	Adjusted future price	Average cash price	Cash premium or discount
1926					
Feb. 1	....	175⅝	175⅝	183⅜	+8
8	....	169½	169½	175	+5½
15	....	168⅜	168⅜	174⅞	+6½
23	....	169⅝	169⅝	176⅛	+6½
Mar. 1	....	158⅞	158⅞	165⅜	+6½
8	....	158	158	164	+6
15	....	165⅜	165⅜	171⅜	+6
22	....	154⅞	154⅞	160⅜	+5½
29	....	157⅞	157⅞	164¼	+6⅜
Apr. 5	....	157⅞	157⅞	163⅜	+5½
12	....	159⅛	159⅛	164⅝	+5½
19	....	167½	167½	173¾	+6¼
26	....	163	163	165⅜	+2⅜
May 3	....	161½	161½	165	+3½
10	....	161½	161½	166¾	+5¼
17	....	158⅞	158⅞	164⅝	+5¾
24	....	163⅝	163⅝	164⅞	+1¼
June 1	132¼	....	140⅝	149½	+9⅛
7	136¾	....	144⅞	162½	+17⅝
14	134⅞	....	143	159¾	+16¾
21	133½	....	141⅝	153½	+11⅞
28	131¾	....	139⅞	135⅞	−4
July 6	136⅝	....	144¾	140⅞	−3⅞
12	136½	....	144⅝	145	+⅜
19	146⅝	....	154¼	147⅞	−6⅜
26	142⅜	....	150½	143⅜	−7⅛
Aug. 2	139¾	....	147⅞	139½	−8⅜
		1926 December future			
9	138½	142⅝	146⅝	139⅛	−7½
16	135¼	139¾	143⅜	136	−7⅜
23	136¾	139¾	144	139	−5
30	....	135¾	140	134⅝	−5⅜
Sept. 7	....	134¼	138⅝	132⅞	−5⅝
13	....	135¼	139¼	137	−2½
20	....	136¼	140½	138⅝	−2⅜
27	....	138⅛	142⅜	142¾	+⅜
Oct. 4	....	138⅝	143⅛	143⅜	+¼
11	....	138⅞	143⅛	142⅜	−¾
18	....	141¾	146	144¾	−1¼
25	....	143⅛	147⅞	145⅛	−2¼
Nov. 1	....	139⅝	143⅞	141⅝	−2¼
	1927 May future				
8	146⅝	142⅛	146⅜	145⅛	−1¼
15	141	136½	141	138⅜	−2⅝
22	138⅞	135½	138⅞	138¾	−⅛
29	138¾	....	138¾	138⅞	+⅛
Dec. 6	141¼	....	141¼	143¾	+2½
13	139⅜	....	139⅜	143⅛	+3¾
20	139⅜	....	139⅜	142¾	+3⅜
27	141¼	....	141¼	143¼	+2

Date	1927 May future	1927 September future	Adjusted future price	Average cash price	Cash premium or discount
1927					
Jan. 3	138⅛	....	138⅛	141⅞	+3¾
10	138½	....	138½	143	+4½
17	139⅝	....	139⅝	143⅝	+4
24	140¼	....	140¼	144¼	+4
31	141	....	141	142½	+1½
Feb. 7	141¼	....	141¼	140¾	−½
14	139⅞	....	139⅞	138⅝	−1¼
21	140⅛	....	140⅛	137⅛	−3
28	138⅞	....	138⅞	135⅞	−3
Mar. 7	141	....	141	140¾	−¼
14	138¼	....	138¼	136¼	−2
21	134⅛	....	134⅛	133⅛	−1
28	133⅝	....	133⅝	134⅜	+¾
Apr. 4	134	....	134	135¼	+1¼
11	132⅜	....	132⅜	133⅝	+1¼
18	133	....	133	136	+3
25	133⅝	....	133⅝	137⅛	+3½
May 2	137⅝	....	137⅝	143⅛	+5½
9	144¼	....	144¼	147	+2¾
16	140⅛	....	140⅛	143⅞	+3¾
23	146⅝	....	146⅝	149⅛	+2½
31	146⅞	146⅜	146⅞	152⅝	+5¾
June 6	....	140⅞	151¼	146⅞	−4⅜
13	....	143⅞	154¼	150⅞	−3⅜
20	....	142⅞	153⅛	150½	−2⅝
27	....	140½	150⅞	146¼	−4⅝
July 5	....	143⅛	153½	147	−6½
11	....	144⅛	154½	148⅛	−6⅜
18	....	137⅝	148	141¼	−6¾
25	....	138⅛	148½	140½	−8
Aug. 1	....	137¼	147⅝	136¾	−10⅞
		1927 December future			
8	146⅜	142¼	152⅝	142	−10⅝
15	147⅛	142⅝	153¼	142¾	−10½
22	145½	141⅜	151⅝	142¼	−9⅜
29	138⅝	....	144¼	136¼	−8
Sept. 6	137⅞	....	143½	134⅝	−8⅞
12	134	....	140⅛	132¼	−7⅞
19	130⅛	....	136¼	129⅞	−6⅜
26	130⅜	....	136½	130½	−6
Oct. 3	130⅝	....	136½	129⅝	−6⅞
10	131½	....	137⅝	130¾	−6⅞
17	129¾	....	135⅞	129½	−6⅜
24	122½	....	128⅝	122¼	−6⅜
31	125⅝	....	131⅛	125⅝	−6⅛
Nov. 7	126¼	....	132⅜	127	−5⅝
14	127	....	133⅛	128¼	−4⅞
		1928 May future			
21	127⅜	134¼	133½	129⅝	−3⅞
28	127⅞	134¼	134	130⅞	−3⅛
Dec. 5	128⅞	133⅞	133⅞	131⅛	−2¾
12	....	133⅜	133⅜	130¾	−2⅝
19	....	131¼	131¼	130	−1¼
27	....	128¾	128¾	127¾	−1

TABLE 8.—*Average cash price of No. 2 Hard Winter wheat compared with the closing futures price for each Monday, Chicago Board of Trade, from July 19, 1920, to September 29, 1930*—Continued

[In cents per bushel]

Date	1928 September future	1928 May future	Adjusted future price	Average cash price	Cash premium or discount
1928					
Jan. 3	--------	131⅞	131⅞	130⅜	−1½
9	--------	130¾	130¾	129¼	−1½
16	--------	130⅛	130⅛	128⅞	−1¼
23	--------	131¼	131¼	131	−¼
30	--------	130½	130½	130¾	+¼
Feb. 6	--------	128⅝	128⅝	130⅝	+2
14	--------	130½	130½	133	+2½
20	--------	135⅝	135⅝	137⅞	+2¼
27	--------	134¾	134¾	137¼	+2½
Mar. 5	--------	137¾	137¾	141¼	+3½
12	--------	136¾	136¾	139	+2¼
19	--------	138⅝	138⅝	140⅝	+2¼
26	--------	139⅞	139⅞	141⅝	+1¾
Apr. 2	--------	142⅜	142⅜	143⅝	+1¼
9	--------	143⅞	143⅞	145⅜	+1½
16	--------	156¼	156¼	158½	+2¼
23	--------	154¼	154¼	158¾	+4½
30	--------	170½	170½	174⅝	+4⅛
May 7	--------	159¾	159¾	164½	+4¾
14	--------	148⅞	148⅞	151⅝	+2¾
21	--------	147½	147½	152⅝	+5¼
28	--------	147¼	147¼	152¾	+5½
June 4	149¾		162½	152¼	−10¼
11	143⅜		156⅛	146⅜	−9¾
18	137⅞		150⅛	139¼	−10⅞
25	138⅜		151½	141⅜	−10⅛
July 2	141¼		154	142⅝	−11⅜
9	132¾		145½	133⅝	−11⅞
16	131⅝		144⅜	130¾	−13⅝
23	121⅝		134⅜	121⅞	−12½
		1928 December future			
30	121⅜	125¾	134⅛	122⅛	−12
Aug. 6	115	120	127⅞	115	−12⅞
13	111	116½	124	110¾	−13¼
20	--------	114¾	122⅝	110⅜	−12¼
27	--------	116½	124⅜	111¾	−12⅝
Sept. 4	--------	115	122⅞	111¾	−11⅛
10	--------	112⅜	120¼	109¾	−10½
17	--------	113⅝	121½	112⅜	−9⅛
24	--------	118⅝	126½	120⅛	−6⅜
Oct. 1	--------	116½	124⅜	117	−7⅜
8	--------	119	126⅝	120	−6⅝
15	--------	115¾	123⅝	116¾	−6⅞
22	--------	112¾	120⅝	113¾	−6⅞
29	--------	117⅛	125	118⅝	−6⅜
Nov. 5	--------	115¼	123⅛	117½	−5⅝
	1929 May future				
13	122⅞	114⅞	122¾	117⅝	−5⅛
19	123⅛	115¼	123⅛	119½	−3⅝
26	123⅝	116	123⅝	120¾	−2⅞
Dec. 3	123½		123½	121⅛	−2⅜
10	120¾		120¾	119	−1¾
17	121¼		121¼	119¾	−1½
24	120⅞		120⅞	117¼	−3⅝
31	118¾		118¾	113⅞	−4⅞

Date	1929 May future	1929 September future	Adjusted future price	Average cash price	Cash premium or discount
1929					
Jan. 7	116¾	--------	116¾	112¾	−4
14	122⅞	--------	122⅞	121⅜	−1½
21	125⅞	--------	125⅞	123⅞	−2
28	126⅞	--------	126⅞	124⅞	−2
Feb. 4	128⅝	--------	128⅝	126⅝	−2
11	128½	--------	128½	127	−1½
18	132¼	--------	132¼	130¾	−1½
25	129⅞	--------	129⅞	126⅛	−3¾
Mar. 4	128⅜	--------	128⅜	124⅞	−3½
11	128	--------	128	125½	−2½
18	128¼	--------	128¼	125¾	−2½
25	122⅞	--------	122⅞	120⅞	−2
Apr. 1	119⅜	--------	119⅜	117⅜	−2
8	121	--------	121	121½	+½
15	122⅞	--------	122⅞	124⅜	+1½
22	113⅝	--------	113⅝	115⅛	+1½
29	112	--------	112	114	+2
May 6	108½	--------	108½	111	+2½
13	104½	--------	104½	107½	+3
20	103¼	--------	103¼	106¼	+3
27	98⅝	--------	98⅝	103⅛	+4½
		1929 December future			
June 3	--------	108	125¼	105¼	−20
10	--------	109⅞	127⅛	106¼	−20⅞
17	--------	110	127¼	106⅝	−20⅝
24	--------	119¾	137	117⅜	−19⅝
July 1	--------	121	138¼	117¾	−20½
8	--------	127½	144¾	124¾	−20
15	147⅞	142⅜	159⅝	139⅞	−19¾
22	152⅜	145⅜	163	141⅝	−21⅜
29	154¾	147⅞	165⅝	142⅜	−23
Aug. 5	146⅛	--------	156¾	130	−26¾
12	139⅝	--------	150¼	124¼	−26
19	146⅞	--------	157½	133⅞	−24⅛
26	140¼	--------	150⅞	126⅜	−24½
Sept. 3	142¾	--------	153⅜	130⅝	−22¾
9	141¾	--------	152⅜	129¼	−23⅛
16	139⅛	--------	149¾	131⅜	−18⅝
23	135⅝	--------	146	127⅛	−18⅞
30	135⅝	--------	146¼	128⅞	−17⅜
Oct. 7	134⅝	--------	145¼	130⅜	−14⅞
14	134⅛	--------	144¾	128⅝	−16⅛
21	128⅛	--------	138¾	122⅞	−15⅞
28	126¾	--------	137⅜	123¼	−14⅛
		1930 May future			
Nov. 4	124⅜	135⅛	135	122⅛	−12⅞
12	112⅞	123⅜	123½	110⅝	−12⅞
18	119⅞	130½	130½	119⅜	−11⅛
25	--------	134⅜	134⅜	123⅜	−11
Dec. 2	--------	139⅜	139⅝	123⅛	−10½
9	--------	133¾	133¾	123¾	−10
16	--------	131½	131½	122	−9½
23	--------	130¾	130¾	122⅜	−8⅜
30	--------	135⅝	135⅝	127¾	−7⅞

TABLE 8.—*Average cash price of No. 2 Hard Winter wheat compared with the closing futures price for each Monday, Chicago Board of Trade, from July 19, 1920, to September 29, 1930*—Continued

[In cents per bushel]

Date	Average closing price 1930 September future	Average closing price 1930 May future	Adjusted future price	Average cash price	Cash premium or discount	Date	Average closing price 1930 September future	Average closing price 1930 May future	Adjusted future price	Average cash price	Cash premium or discount
1930						**1930**					
Jan. 6	-------	133⅛	133⅛	125⅞	−7¼	July 7	91⅜	-------	101¾	88⅛	−13⅝
13	-------	129	129	122¾	−6¼	14	90⅜	-------	100¾	87¾	−13
20	-------	127⅛	127⅛	121⅞	−5¼	21	90⅞	-------	101¼	88⅜	−12⅞
27	-------	125⅜	125⅜	121⅜	−4						
Feb. 3	-------	117⅞	117⅞	113⅞	−4						
10	-------	121⅞	121⅞	117⅜	−4½			**1930 December future**			
17	-------	117¾	117¾	111¾	−6						
24	-------	108¼	108¼	103¼	−5						
Mar. 3	-------	113¼	113¼	109	−4¼						
10	-------	111¾	111¾	106¾	−5						
17	-------	107¼	107¼	101¾	−5½						
24	-------	109¼	109¼	105	−4¼	28	89½	95	99⅞	87⅜	−12½
31	-------	109½	109½	106½	−3	Aug. 4	88⅞	94⅜	99⅛	87⅝	−11½
Apr. 7	-------	115	115	112½	−2½	11	93½	99¼	104	92⅝	−11⅜
14	-------	107⅞	107⅞	104⅞	−3	18	87⅛	92	96¾	87	− 9¾
21	-------	104⅝	104⅝	103⅛	−1½	25	89	94	98¾	90¼	−8½
28	-------	104½	104½	103	−1½	Sept. 2	83¼	88⅞	93⅝	84½	−9⅛
May 5	-------	100⅛	100⅛	98⅞	−1¼	8	84	89⅜	94⅛	86¾	−7⅜
12	-------	103⅜	103⅜	102¾	−⅝	15	79⅞	85	89¾	77⅝	−12⅛
19	-------	104¼	104¼	103¾	−½	22	80⅜	84⅝	89¼	78⅝	−10⅝
26	-------	107⅝	107⅝	107⅝	-------	29	74½	77⅜	82⅛	73¼	−8⅞
June 2	110	-------	-------	105	-------						
9	110½	-------	120⅞	105⅞	−15						
16	98⅞	-------	109¼	95⅝	−13⅝						
23	95½	-------	105⅞	91¾	−14⅛						
30	93	-------	103⅜	88¾	−14⅝						

TABLE 9.—*Average cash price of No. 3 Yellow corn compared with the closing futures price for each Friday, Chicago Board of Trade, from October 1, 1920, to September 26, 1930*

[In cents per bushel]

Date	Average closing price 1920 December future	Average closing price 1921 May future	Adjusted future price [1]	Average cash price [2]	Cash premium or discount [3]	Date	Average closing price 1920 December future	Average closing price 1921 May future	Adjusted future price [1]	Average cash price [2]	Cash premium or discount [3]
1920						**1921**					
Oct. 1	93	-------	102⅝	105	+2⅜	Jan. 7	-------	74½	78½	69¾	−8¾
8	84⅜	-------	94	89⅞	−4⅛	14	-------	74½	78½	69¾	−8¾
15	89⅛	-------	98¾	94¼	−4½	21	-------	67¼	71¼	62¾	−8½
22	81¼	-------	90⅞	84	−6⅞	28	-------	66¾	70¾	61⅞	−8⅞
29	83¾	-------	93⅜	89	−4⅜	Feb. 4	-------	65	69	58⅞	−10⅛
Nov. 5	83⅛	-------	92¾	89	−3¾	11	-------	67⅞	71⅞	63⅛	−8¾
12	74½	79¼	84⅛	86¾	+2⅝	18	-------	69⅝	73⅝	67⅛	−6½
19	66½	71⅞	75⅞	74¾	−1⅛	25	-------	70	74	64⅜	−9⅝
26	64⅞	71½	75½	70½	−5	Mar. 4	-------	71¾	75¾	66⅝	−9⅝
Dec. 3	-------	76⅜	80⅜	76¾	−3⅝	11	-------	69¼	73¼	62⅝	−10⅝
10	-------	71⅜	75⅝	73¾	−1⅝	18	-------	67⅜	71⅜	62⅜	−9
17	-------	71¼	75¼	73¾	−1½	24	-------	64⅛	68⅛	58¾	−9⅜
24	-------	74¼	78¼	72¼	−6	Apr. 1	-------	59½	63½	55½	−8
31	-------	74½	78½	69½	−9						

[1] See text, p. 13, for method of adjustment.
[2] The average of premiums or discounts paid, applied to the closing price of the future upon which they were based.
[3] The adjusted future price subtracted from the average cash price, the plus (+) sign indicating a premium and the minus (—) sign a discount.

TABLE 9.—*Average cash price of No. 3 Yellow corn compared with the closing futures price for each Friday, Chicago Board of Trade, from October 1, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	Average closing price 1921 July future	1921 May future	Adjusted future price	Average cash price	Cash premium or discount
1921					
April 8	63¼	59¾	63¾	56⅝	−7⅛
15	59¾	57⅞	60½	54⅛	−6⅜
22	63¼	60¾	64	58¾	−5¼
29	60	--------	60¾	57⅜	−3⅜
May 6	63	--------	63¾	60⅝	−3⅛
13	63¼	--------	64	61⅝	−2⅜
20	60⅝	--------	61⅛	59	−2⅛
27	64⅝	--------	65⅜	64	−1⅜
		1921 September future			
June 3	65⅝	66⅞	66⅜	65⅝	−¾
10	62	62½	62¾	61	−1¾
17	65¼	65⅝	65⅝	63⅝	−2
24	--------	62¾	62¾	61	−1¾
	1921 December future				
July 1	--------	62⅛	62⅛	59½	−2⅝
8	--------	60¾	60¾	59½	−1¼
15	--------	62	62	62	0
22	--------	61¾	61¾	62⅝	+⅞
29	--------	60	60	62	+2
Aug. 5	--------	56⅝	56⅝	57¼	+⅝
12	--------	56¾	56¾	58	+1¼
19	--------	52⅛	52⅛	52¼	+⅛
26	--------	54½	54½	55⅞	+1⅜
Sept. 2	--------	53¾	53¾	55	+1¼
9	--------	55¾	55¾	56⅝	+⅞
16	--------	53⅝	53⅝	54¼	+⅞
23	--------	52¾	52¾	53¼	+½
30	--------	47	47	47⅞	+⅞
Oct. 7	48½	--------	60¾	47	−13¾
		1922 May future			
14	47⅜	53⅛	59⅝	45¼	−14⅜
21	46⅞	52⅛	58⅞	45¾	−13⅛
28	48⅝	54¼	61	45⅞	−15⅛
Nov. 4	--------	51⅝	58⅝	44⅜	−14
10	--------	52	58¾	44⅜	−14⅜
18	--------	54¼	61	49	−12
25	--------	54⅞	61⅝	51¼	−10⅜
Dec. 2	--------	54¾	61½	48¾	−12¾
9	--------	54⅜	61⅝	48¾	−12¾
16	--------	53	59¾	45⅝	−14⅛
23	--------	55	61¾	48½	−13¼
30	--------	53⅞	60⅝	47½	−13⅛
1922					
Jan. 6	--------	53¼	60	46⅞	−13⅛
13	--------	53⅛	59⅞	47⅞	−12
20	--------	53⅜	60⅛	48½	−11⅝
27	--------	53½	60¼	48⅜	−11⅞

Date	Average closing price 1922 July future	1922 May future	Adjusted future price	Average cash price	Cash premium or discount
1922					
Feb. 3	--------	55¼	62	48⅞	−13⅛
10	--------	59⅛	65⅞	52⅝	−13¼
17	--------	62¼	69	56⅜	−12⅝
24	--------	66⅛	72⅞	57⅝	−15¼
Mar. 3	--------	66½	73¼	60⅝	−13⅛
10	--------	62⅜	69⅛	55¾	−13⅜
17	--------	62¾	69½	58¾	−10¾
24	--------	59¼	66	55½	−10½
31	--------	57⅜	64⅛	55⅝	−8½
	1922 July future				
Apr. 7	62⅛	58⅝	66⅜	56	−10⅝
13	63⅝	60	66⅞	58⅛	−8¾
21	64⅞	61⅜	68⅛	61⅛	−7
28	65⅛	--------	68⅜	60⅝	−7¾
May 5	64⅞	--------	68⅛	63⅛	−5
12	64½	--------	67¾	61⅝	−6⅛
19	64⅛	--------	67⅜	61⅞	−5½
26	63⅛	--------	66⅜	61½	−4⅞
		1922 September future			
June 2	61⅞	64¾	65⅛	60¾	−4¾
9	62	65¼	65¼	61¼	−4
16	61⅞	65⅜	65⅜	59½	−5⅞
23	--------	67⅜	67⅜	63⅝	−4
30	--------	65⅞	65⅞	63	−2⅞
July 7	--------	66⅝	66⅝	65	−1⅝
14	--------	64⅞	64⅞	64⅞	0
21	--------	64¼	64¼	65⅜	+1⅛
28	--------	63⅜	63⅜	65¼	+1⅞
Aug. 4	--------	62⅛	62⅛	63⅝	+1½
11	--------	58¼	58¼	61⅝	+3⅜
18	--------	59⅝	59⅝	63⅝	+4
25	--------	60⅜	60⅜	63⅝	+3¾
Sept. 1	--------	60⅜	60⅜	62⅜	+2
8	--------	61⅞	61⅞	63¾	+1⅞
15	--------	62⅛	62⅛	62¼	0
22	--------	64¼	64¼	65½	+1¼
29	--------	62½	62½	64⅝	+2⅛
	1922 December future				
Oct. 6	60⅞	--------	58⅞	67	+8⅛
13	64	--------	62	69⅛	+7⅛
20	67⅞	--------	65⅞	73¾	+7⅞
		1923 May future			
27	67⅞	68	65⅞	70¼	+4⅜
Nov. 3	68	67⅞	65⅝	70⅜	+4¾
10	68¼	67⅞	66⅞	70	+3⅛
17	--------	71⅜	69⅛	72¾	+3⅝
24	--------	70¼	68	72½	+4½

TABLE 9.—*Average cash price of No. 3 Yellow corn compared with the closing futures price for each Friday, Chicago Board of Trade, from October 1, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	1923 July future	1923 May future	Adjusted future price	Average cash price	Cash premium or discount
1922					
Dec. 1	-------	70½	68¼	73	+4¾
8	-------	69⅞	67⅝	71⅜	+3¾
15	-------	73⅝	71⅜	75⅜	+4
22	-------	72	69¾	72	+2¼
29	-------	71⅝	69⅜	71⅝	+2¼
1923					
Jan. 5	-------	71⅛	68⅞	69⅞	+1
12	-------	72	69¾	70¾	+1
19	-------	72⅞	70⅝	71⅛	+½
26	-------	72¾	70½	69¾	-¾
Feb. 2	-------	74⅜	72½	71½	-⅝
9	-------	76	73¾	74¼	+½
16	-------	75	72¾	72¾	0
23	-------	74½	72¼	72⅛	-⅛
Mar. 2	-------	75¼	73	72¾	-¼
9	-------	74⅜	72⅛	72⅜	+¼
16	-------	74¾	72½	73¼	+¾
23	-------	73¾	71½	73¾	+2¼
29	-------	74¼	72	74⅝	+2⅝
1923 July future					
Apr. 6	79¼	76½	74¼	76¾	+2½
13	81½	80⅜	77⅜	81⅛	+3¾
20	80¾	78⅞	76⅝	80⅞	+4¼
27	81¾	-------	77⅝	83⅝	+6
May 4	80⅞	-------	76¾	82⅝	+5⅞
11	78	-------	73⅞	82	+8⅛
18	80	-------	75⅝	85½	+9⅝
25	79½	-------	75	82	+7
June 1	78⅜	-------	74¼	80¼	+6
	1923 September future				
8	81½	77⅝	77⅜	83¾	+6⅜
15	82¼	77⅞	78⅛	84	+5⅞
22	84	80	80	87⅛	+7⅛
29	-------	75⅝	75⅝	83⅞	+8⅛
July 6	-------	74⅝	74⅝	85¼	+10⅝
13	-------	76¼	76¼	86⅞	+10⅝
20	-------	76⅛	76⅛	88⅞	+12¾
27	-------	77⅝	77⅝	89⅜	+11¾
Aug. 2	-------	76⅞	76⅞	87¾	+10⅞
9	-------	76⅞	76⅞	87¼	+10⅜
17	-------	79½	79½	89	+9⅞
24	-------	83⅜	83⅜	90	+6⅝
31	-------	84¼	84¼	90	+5¾
Sept. 7	-------	85⅜	85⅜	90⅜	+5
14	-------	84¼	84¼	88⅞	+4½
21	-------	85⅛	85⅛	88⅛	+3
28	-------	92⅜	92⅜	92⅛	-¼
1923 December future					
Oct. 5	74⅞	-------	72½	102	+29½
11	76⅝	-------	74¼	107⅜	+33⅛
19	75⅝	-------	73¼	110	+36¾

Date	1923 December future	1924 May future	Adjusted future price	Average cash price	Cash premium or discount
1923					
Oct. 26	74⅛	71¾	71¾	102	+30¼
Nov. 2	73⅝	72	71¼	93	+21¾
9	77	74⅝	74⅜	94	+19⅝
16	-------	72⅜	72⅛	89	+16⅞
23	-------	72½	72¼	80½	+8⅜
30	-------	73⅝	73⅜	73⅝	+¼
Dec. 7	-------	74⅜	74½	74⅞	+⅜
14	-------	72¾	72½	71¼	-1¼
21	-------	72⅝	72⅜	70½	-1⅞
28	-------	73¾	73½	70⅜	-3⅛
1924					
Jan. 4	-------	76¼	76	73½	-2½
11	-------	77⅛	76⅞	74⅞	-2
18	-------	78¾	78½	78½	0
25	-------	80	79¾	79¼	-½
Feb. 1	-------	80⅜	80⅛	79	-1⅛
8	-------	81⅜	81½	79¼	-2¼
15	-------	79⅝	79⅜	77¾	-1⅝
21	-------	80⅛	79⅞	78	-1⅞
29	-------	80⅞	80⅝	79	-1⅝
Mar. 7	-------	80¾	80½	78	-2½
14	-------	77⅞	77⅝	77¾	+⅛
21	-------	78½	77⅞	77⅞	-½
28	-------	75	74¾	75⅛	+⅜
Apr. 4	-------	78½	78¼	80⅞	+2⅝
11	-------	77	76¾	77⅝	+⅞
17	-------	78⅜	78⅛	79⅛	+1
		1924 July future			
25	78½	77⅜	77⅛	78	+⅞
May 2	79⅛	78⅜	78⅛	77⅛	-1
9	77½	77¼	76½	77⅜	+⅞
16	76	-------	75	76⅜	+1⅜
23	77	-------	76	79½	+3½
29	76⅞	-------	75⅞	76¾	+⅞
June 6	77¼	-------	76¼	77¾	+1½
		1924 September future			
13	80¾	80⅜	79¾	82¾	+3
20	86¾	85¾	85¾	87¾	+2
27	93⅝	92⅛	92⅛	99¼	+7⅛
July 3	-------	92⅜	92⅜	98⅛	+6⅛
11	-------	98⅜	98⅜	108¾	+10⅜
18	-------	104	104	112⅛	+8⅛
25	-------	104⅛	104⅛	110¼	+6⅛
Aug. 1	-------	111½	111½	114¼	+2¾
8	-------	114⅜	114⅜	116	+1⅝
15	-------	120¾	120¾	119½	-1¼
22	-------	114¾	114¾	118¼	+3½
29	-------	117⅞	117⅞	120⅞	+3
Sept. 5	-------	117⅝	117⅝	120¾	+3⅛
12	-------	121¾	121¾	122½	+¾
19	-------	115⅞	115⅞	116¼	+⅜
26	-------	110½	110½	108⅞	-1⅝

TABLE 9.—*Average cash price of No. 3 Yellow corn compared with the closing futures price for each Friday, Chicago Board of Trade, from October 1, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	Average closing price		Adjusted future price	Average cash price	Cash premium or discount
	1924 December future	1924 September future			
1924					
Oct. 3	107⅞	-------	118⅜	114⅞	−3½
10	111¾	-------	119¼	113⅛	−6⅛
17	109	-------	116½	110⅝	−5⅞
		1925 May future			
24	101⅝	104⅝	109⅛	104⅝	−4½
31	106¼	110⅛	113¾	104¾	−9
Nov. 7	108⅝	112⅜	116⅜	108¾	−7⅝
14	-------	117⅜	121⅜	114¼	−7⅛
21	-------	119⅛	123⅛	116¾	−6⅜
28	-------	120⅝	124⅝	113	−11⅝
Dec. 5	-------	124	128	117⅝	−10⅜
12	-------	130¾	134¾	123⅝	−11⅛
19	-------	129¾	133¾	123⅜	−10⅜
26	-------	131⅜	135⅝	126	−9⅜
1925					
Jan. 2	-------	128⅝	132⅝	123½	−9⅛
9	-------	128½	132½	123¼	−9¼
16	-------	133⅜	137⅜	127⅝	−9¾
23	-------	132⅝	136⅝	124½	−12⅛
30	-------	135	139	126⅞	−12⅛
Feb. 6	-------	133⅞	137⅞	124	−13⅞
13	-------	126⅜	130⅜	117⅛	−13¼
20	-------	128¾	132¾	121⅞	−10⅞
27	-------	133	137	126⅜	−10⅜
	1925 July future				
Mar. 6	-------	128¾	132¾	122¾	−10
13	-------	119⅝	123⅝	114¾	−8⅞
20	-------	117¾	121¾	113	−8¾
27	112⅜	109⅛	113⅛	108½	−4⅝
Apr. 3	95⅞	92⅝	96⅜	91	−5⅜
9	109⅛	106	109⅞	104½	−5⅜
17	110⅜	-------	111½	105⅞	−5⅝
24	110¼	-------	111	106⅞	−4⅛
May 1	111⅞	-------	112⅝	106⅝	−6
8	116¾	-------	117½	115⅜	−2⅛
15	114⅞	-------	115⅝	114¼	−1⅜
22	115	-------	115¾	113⅝	−2⅛
29	118⅛	-------	118⅞	118	−⅞
		1925 September future			
June 5	116⅝	116⅞	117⅜	118	+⅝
12	115⅜	117	117	115	−2
19	110⅛	110⅜	110⅜	112	+1⅝
26	-------	104⅜	104⅜	104¾	+⅜
July 3	-------	101⅝	101⅝	102⅜	+¾
10	-------	104⅞	104⅞	109½	+4⅝
17	-------	107¾	107¾	110⅞	+3⅛
24	-------	104¾	104¾	108⅞	+4⅛
31	-------	104	104	107½	+3½

Date	Average closing price		Adjusted future price	Average cash price	Cash premium or discount
	1925 July future	1925 September future			
1925					
Aug. 7	-------	104¾	104¾	108⅜	+3⅝
14	-------	104⅝	104⅝	106¾	+2⅛
21	-------	104¼	104¼	105	+¾
28	-------	92⅝	92⅝	94⅝	+2
Sept. 4	-------	97⅝	97⅝	100¼	+2⅝
11	-------	96¼	96¼	97⅜	+1⅛
18	-------	90¼	90¼	92½	+2¼
25	-------	79⅞	79⅞	81⅜	+1½
	1925 December future				
Oct. 2	78¾	-------	95⅜	81¾	−13⅝
9	76¼	-------	92⅞	81½	−11⅜
16	75⅜	-------	92⅜	83½	−8⅞
23	74⅛	-------	90¾	80⅞	−9⅞
30	74⅜	-------	91	81⅜	−9⅝
Nov. 6	74⅝	-------	91¼	83⅞	−7⅜
13	76¾	-------	93⅝	86½	−6⅞
20	74¾	-------	91⅜	85	−6⅜
		1926 May future			
27	73¼	78⅞	89⅞	78	−11⅞
Dec. 4	77⅛	83⅛	93¾	79¼	−14½
11	78¼	84⅞	95⅝	77½	−17⅞
18	-------	81¾	92⅞	74½	−17⅞
24	-------	84	94⅝	75	−19⅝
31	-------	86⅜	97	78	−19
1926					
Jan. 8	-------	88⅜	99	80⅛	−18⅞
15	-------	85⅝	96	77½	−18½
22	-------	84	94⅝	76½	−18⅛
29	-------	84¾	95⅝	78½	−16⅞
	1926 July future				
Feb. 5	-------	82¾	93⅜	78½	−14⅞
11	-------	81½	92⅛	76	−16⅛
19	-------	79	89⅝	74	−15⅝
26	-------	79½	90⅛	74⅝	−15½
Mar. 5	-------	78⅛	88¾	73¼	−15½
12	-------	78½	89⅛	74½	−14⅝
19	-------	73½	84⅛	71¾	−12⅜
26	-------	73½	84⅛	70	−14⅛
Apr. 1	-------	73⅝	84¼	72	−12¼
9	-------	71⅜	82	70⅜	−11⅝
16	77⅞	73⅝	84¼	72½	−11¾
23	77¾	73½	84½	72⅝	−11½
30	76½	71⅛	82½	71¾	−10¾
May 7	73⅞	-------	79⅝	70⅝	−9⅛
14	74⅜	-------	80⅜	70⅝	−9¾
21	74½	-------	80½	71¼	−9¼
28	71⅜	-------	77⅜	68¾	−8⅝
June 4	72½	-------	78½	70¼	−8¼
11	74⅜	-------	80⅜	71¼	−9⅛

TABLE 9.—*Average cash price of No. 3 Yellow corn compared with the closing futures price for each Friday, Chicago Board of Trade, from October 1, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	1926 July future	1926 September future	Adjusted future price	Average cash price	Cash premium or discount
1926					
June 18	70⅜	75¾	76⅜	69⅜	-7
25	68¾	74¾	74¾	69½	-5¼
July 2	65⅜	75⅛	75⅛	69¾	-5⅜
9		77	77	74¾	-2¾
16		82	82	79¾	-2¼
23		82⅜	82⅜	82⅜	0
30		85	85	84⅜	-⅝
Aug. 6		83⅝	83⅝	83⅝	0
13		82¼	82¼	80¾	-1½
20		79⅜	79⅜	77½	-1⅞
27		76⅞	76⅞	77½	+⅝
Sept. 3		75⅜	75⅜	78	+2⅝
10		79½	79½	80¾	+1¼
17		76⅜	76⅜	80⅜	+4
24		73¾	73¾	79⅞	+6⅛
(1926 December future)					
Oct. 1	80½		99⅛	79⅛	-20
8	77⅞		96⅝	77½	-19⅛
15	76⅝		95	76¾	-18¼
22	78⅜		97	76¾	-20¼
(1927 May future)					
29	75⅛	83⅜	93¾	75⅜	-18⅛
Nov. 5	70¾	79½	89⅜	71¼	-18⅛
12	68⅝	77⅛	87⅛	68¾	-18⅜
19		80⅛	90⅛	70	-20⅛
26		80	90	72	-18
Dec. 3		81⅞	91⅞	74⅛	-17¾
10		82½	92½	76⅝	-15⅞
17		81½	91½	75½	-16
23		81¾	91¾	75⅛	-16⅝
30		80⅜	90⅜	72¼	-18⅛
(1927 July future)					
1927					
Jan. 7		79⅜	89⅜	71	-18⅜
14		81⅛	91⅛	76¾	-14⅜
21		81¼	91¼	78½	-12¾
28		81⅛	91⅛	76⅝	-14½
Feb. 4		81	91	74½	-16½
11		81⅛	91⅛	73¾	-17⅜
18		79	89	70¾	-18¼
25		77½	87½	68½	-19
Mar. 4		77⅜	87⅛	71⅜	-15¾
11		76⅝	86⅝	66½	-20⅛
18		75¼	85¼	70	-15¼
25		72⅛	82⅛	67	-15⅛
Apr. 1		72⅝	82⅝	72½	-10⅛
8		73⅞	80⅞	68⅝	-12⅛
14	75⅛	70⅛	80⅜	68	-12⅛
22	77	71¼	81⅞	72	-9⅞
29	77½	71⅛	81⅛	72	-9⅞

Date	1927 July future	1927 May future	Adjusted future price	Average cash price	Cash premium or discount
1927					
May 6	84⅝		89	76¾	-12¼
13	87⅜		91¾	85	-6¾
20	92¾		97⅛	90½	-6⅝
27	97⅞		102¼	93⅞	-8⅜
(1927 September future)					
June 3	102⅛	105¼	106½	101⅝	-4⅞
10	94⅛	99	98½	94¾	-3¾
17	100	105¼	105¼	100¾	-4½
24		102⅛	102⅛	97⅛	-5
July 1		104¼	104¼	99	-5¼
8		106½	106½	103½	-3
15		102⅝	102⅝	100	-2⅝
22		104¾	104¾	102½	-2¼
29		104¾	104¾	102½	-2¼
Aug. 5		108	108	106⅜	-1⅞
12		111⅞	111⅞	111¼	-½
19		110¾	110¾	111¾	+1
26		111⅛	111⅛	109⅜	-1¾
Sept. 2		106⅜	106⅜	106	-⅜
9		102	102	102	0
16		91⅛	91⅛	89¾	-1⅜
23		95⅜	95⅜	95¼	-⅜
30		91¼	91¼	94	+2¾
(1927 December future)					
Oct. 7	93½		99⅝	95⅝	-4
14	86⅝		93	89⅞	-3⅛
21	82⅞		89	82⅝	-6⅜
28	82⅝		88¾	81¾	-7
Nov. 4	82¾		88⅝	82⅝	-6¼
10	85¼		91⅜	85⅛	-6¼
(1928 May future)					
18	87⅛	93¾	93¼	86½	-6¾
25	86⅞	94⅛	93¼	87⅜	-5⅞
Dec. 2	90⅜		97⅜	96½	-5⅜
9		95⅝	94½	88¾	-5⅜
16		93¾	92⅝	87⅞	-5
23		88⅝	87¾	83⅜	-4⅜
30		89¼	88⅜	82⅝	-5¾
(1928 July future)					
1928					
Jan. 6		90¾	89⅞	84	-5⅞
13		92⅛	91¼	90	-1¼
20		92	91⅛	89½	-1⅝
27		90¼	89⅜	88½	-⅞

TABLE 9.—*Average cash price of No. 3 Yellow corn compared with the closing futures price for each Friday, Chicago Board of Trade, from October 1, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	Average closing price 1928 July future	Average closing price 1928 May future	Adjusted future price	Average cash price	Cash premium or discount
1928					
Feb. 3	--------	91⅛	90¼	91⅜	+1⅛
10	--------	94¼	93⅜	94⅜	+1
17	--------	97⅛	96¼	98	+1¾
24	--------	97⅝	96¾	96⅜	−⅜
Mar. 2	--------	98	97⅛	97	−⅛
9	--------	97⅞	97	98¼	+1¼
16	--------	100¾	99⅝	100½	+⅝
23	--------	99½	98⅝	99⅝	1
30	--------	101⅝	100¾	102½	+1¾
Apr. 5	--------	97⅝	96¾	98¼	+1½
13	102⅞	99½	98⅝	102⅛	+3½
20	108½	104¾	103⅞	108¼	+4⅜
27	110½	107¼	106⅛	110	+3⅞
May 4	109⅝	--------	105¼	109¼	+4
11	107¾	--------	103⅜	107	+3⅝
18	105½	--------	101⅛	106⅝	+5½
25	103⅞	--------	99½	106	+6½
June 1	104⅛	--------	99¾	103⅛	+3⅜
8	103¾	--------	99⅜	104¾	+5⅜
15	101⅜	--------	97	102⅝	+5⅝
		1928 September future			
22	98⅜	95¼	94	100¾	+6¾
29	105	101	100⅜	106	+5⅝
July 6	107	101	101	106⅞	+5⅞
13	--------	98⅞	98⅞	108	+9⅛
20	--------	97½	97½	107⅝	+10⅛
27	--------	96¾	96¾	108¾	+12
Aug. 3	--------	97	97	105¾	+8¾
10	--------	92⅛	92⅛	100¾	+8⅝
17	--------	88	88	100¾	+12¾
24	--------	89⅝	89⅝	101¾	+12⅛
31	--------	94⅛	94⅛	101¾	+7⅞
Sept. 7	--------	95½	95½	102¾	+7¼
14	--------	100⅝	100⅝	103	+2⅜
21	--------	102½	102½	104⅜	+1⅞
28	--------	95⅝	95⅝	95⅝	+¼
	1928 December future				
Oct. 5	83	--------	93½	102¾	+9¼
11	80⅜	--------	90⅞	98¾	+7⅞
19	82	--------	92½	97⅛	+4⅝
26	81	--------	91½	93	+1½
Nov. 2	83	--------	93½	84	−9½
9	83⅞	--------	94⅜	85¼	−9⅛
16	85⅜	--------	95⅞	87	−8⅞
23	85½	--------	96	85⅜	−10⅝
		1929 May future			
30	84	90⅛	94½	84	−10½
Dec. 7	83¼	89⅛	93¾	82½	−11¼
14	83¼	90	94¼	82⅞	−11⅜
21	--------	90⅝	94⅞	83¼	−11⅝
28	--------	90¾	95	86¼	−8¾

Date	Average closing price 1929 July future	Average closing price 1929 May future	Adjusted future price	Average cash price	Cash premium or discount
1929					
Jan. 4	--------	90¾	95	84¾	−10¼
11	--------	95⅝	99⅞	90¼	−9⅝
18	--------	102¼	106½	96	−10½
25	--------	103⅛	107⅜	98¾	−8⅝
Feb. 1	--------	100¾	105	95⅞	−9⅛
8	--------	98⅝	102⅞	94¾	−8⅛
15	--------	99⅞	104⅛	95¾	−8⅜
21	--------	99⅜	103⅝	94½	−9⅛
Mar. 1	--------	100¾	105	95⅜	−9⅝
8	--------	99¾	104	96⅜	−7⅝
15	--------	99⅜	103⅝	96	−7⅝
22	--------	95⅛	99⅜	93⅛	−6¼
28	--------	94	94½	91½	−3
Apr. 5	--------	90¼	94	89¼	−4¾
12	--------	94	98¼	91	−7¼
19	95	91⅝	95⅞	90⅜	−5½
26	92⅝	89⅛	93⅜	88⅞	−4½
May 3	93	88½	93¼	90	−3¼
10	88	--------	88½	85¾	−2¾
17	86¾	--------	87¼	88¼	+1¼
24	86	--------	86½	87¼	+¾
31	80⅝	--------	81⅛	80⅜	−¾
June 7	90⅛	--------	90⅝	90⅝	+⅞
		1929 September future			
14	92½	91⅞	93	93¼	+¼
21	92¼	92⅝	92⅝	93¼	+⅝
28	92⅝	94¼	94¼	93¾	−½
July 5	--------	98½	98½	94¾	−3¾
12	--------	97¼	97¼	97⅛	−⅛
19	--------	102¾	102¾	102⅝	−⅛
26	--------	104¾	104¾	106	+1¼
Aug. 2	--------	103¼	103¼	102¼	−1
9	--------	103	103	101⅝	−1⅜
16	--------	103¼	103¼	102½	−¾
23	--------	101⅞	101⅞	101⅝	−¼
30	--------	103	103	102⅛	−⅞
Sept. 6	--------	104½	104½	103¼	−1¼
13	--------	103⅝	103⅝	102¾	−⅞
20	--------	101½	101½	101	−½
27	--------	100	100	100⅛	+⅛
	1929 December future				
Oct. 4	97⅛	--------	106¾	103½	−3¼
11	94⅞	--------	104½	97⅝	−6⅞
18	91⅝	--------	101¼	94⅝	−6⅝
25	92⅛	--------	101¾	90⅝	−11⅛
Nov. 1	91½	--------	101⅛	91¾	−9⅜
8	89	--------	98⅝	89⅝	−9
15	86⅜	--------	96	88¾	−7¼
		1930 May future			
22	89¼	95¾	99½	93	−6½
29	87¾	95⅝	97⅜	86⅛	−11¼
Dec. 6	90¼	98⅛	100⅜	90½	−9⅞
13	--------	96½	98¾	87¾	−11
20	--------	94⅝	96⅞	87¾	−9¼
27	--------	95¾	98	89⅞	−8⅛

TABLE 9.—*Average cash price of No. 3 Yellow corn compared with the closing futures price for each Friday, Chicago Board of Trade, from October 1, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	Average closing price		Adjusted future price	Average cash price	Cash premium or discount	Date	Average closing price		Adjusted future price	Average cash price	Cash premium or discount
	1930 July future	1930 May future					1930 July future	1930 September future			
1930						**1930**					
Jan. 3	--------	95	97¼	84	−13¼	June 6	81¾	82¼	81⅞	81⅝	−¼
10	--------	94⅞	97⅛	88½	−8⅝	13	79⅛	79¾	79¾	80	+¼
17	--------	93¼	95½	84½	−11	20	75¼	74½	74½	76¼	+1¾
24	--------	91	93¼	84¼	−9	27	--------	74¼	74¼	78½	+4¼
31	--------	90¾	93	83	−10	July 3	--------	74½	74½	77	+2½
Feb. 7	--------	91⅞	94⅛	83¾	−10⅜	11	--------	76	76	80	+4
14	--------	91½	93⅜	83	−10⅜	18	--------	78⅞	78⅞	82¼	+3⅜
21	--------	88¾	91	82¼	−8¾	25	--------	85	85	85¼	+¼
28	--------	88¼	90½	81¾	−8¾	Aug. 1	--------	87⅜	87⅜	89¼	+1⅞
Mar. 7	--------	88¾	86	77⅜	−8⅝	8	--------	97⅜	97⅜	102	+4⅝
14	--------	79⅜	81⅝	74¼	−7⅜	15	--------	95⅝	98⅝	101⅜	+2¾
21	--------	84½	86¾	82¾	−4	22	--------	98⅛	98⅛	100⅛	+2
28	--------	84⅜	86⅜	81⅜	−5	29	--------	99⅜	99⅜	100⅛	+¾
Apr. 4	88⅜	86½	88¾	84¾	−4	Sept. 5	--------	98⅛	98⅛	100⅜	+2¼
11	86¾	84	86¼	82½	−3¾	12	--------	94	94	96	+2
17	85¼	83⅜	85⅜	82⅛	−3¼	19	--------	90¼	90¼	92⅛	+1⅞
25	82¾	--------	82⅞	80½	−2⅜	26	--------	84⅜	84⅜	87⅜	+3
May 2	80¾	--------	80⅞	78¼	−2⅝						
9	78⅞	--------	79	78⅞	−⅛						
16	81⅝	--------	81¾	80	−1¾						
23	80⅛	--------	80¼	79⅜	−⅞						
29	80	--------	80⅛	79¼	−⅞						

TABLE 10.—*Average cash price of No. 2 White oats compared with the closing futures price for each Friday, Chicago Board of Trade, from June 4, 1920, to September 26, 1930*

[In cents per bushel]

Date	Average closing price		Adjusted future price [1]	Average cash price [2]	Cash premium or discount [3]	Date	Average closing price		Adjusted future price [1]	Average cash price [2]	Cash premium or discount [3]
	1920 September future	1920 December future					1921 May future	1920 December future			
1920						**1920**					
June 4	78¾	--------	81⅞	115½	+33⅝	Nov. 12	53⅛	48	52⅜	51⅞	−½
11	84⅞	--------	88	118	+30	19	48⅞	44⅝	49	49½	+½
18	86⅜	--------	89½	119½	+30	26	48⅜	44⅜	48⅜	48¾	+⅜
25	84⅝	--------	87¾	116¼	+28½	Dec. 3	51⅜	--------	51⅜	50½	−⅞
July 2	83⅜	--------	86½	113½	+27	10	49⅛	--------	49⅛	49⅜	+¼
9	77⅞	--------	81	107	+26	17	48⅜	--------	48⅜	47⅞	−½
16	76⅞	--------	80	96⅞	+16⅞	24	49¼	--------	49¼	48	−1¼
23	76⅝	--------	79¾	97¾	+18	31	49½	--------	49½	47¾	−1¾
30	68⅞	--------	72	77	+5	**1921**					
Aug. 6	73⅝	71½	76¾	84¼	+7½	Jan. 7	48¾	--------	48¾	47¼	−1½
13	72	70¼	74⅜	76⅞	+2¼	14	48⅛	--------	48⅛	46⅞	−1¼
20	67¾	67⅞	72¼	71⅝	−⅝	21	43⅝	--------	43⅝	43⅛	−½
27	--------	66⅞	71¼	71½	+¼	28	42⅝	--------	42⅝	41⅛	−1½
Sept. 3	--------	66	70⅜	68½	−1⅞	Feb. 4	41¼	--------	41¼	39⅞	−1⅜
10	--------	65⅜	70	66⅜	−3⅝	11	44⅛	--------	44⅛	43⅜	−¾
17	--------	63⅜	67¾	62⅛	−5⅝	18	45⅛	--------	45⅛	46⅛	+1
24	--------	57⅝	62	58	−4	25	45¼	--------	45¼	44	−1¼
Oct. 1	--------	57⅜	61¾	56¼	−5½	Mar. 4	46½	--------	46½	46¼	−¼
8	--------	54⅞	59¼	54⅜	−4¾	11	43⅝	--------	43⅝	44	+⅜
15	--------	57⅛	61½	56⅛	−5⅜	18	41⅝	--------	41⅝	42⅛	+½
22	--------	53½	57⅞	53⅜	−4½	24	40½	--------	40½	41⅛	+⅝
29	--------	54⅝	59	55⅜	−3⅝						
Nov. 5	--------	52⅞	57¼	54⅞	−2⅜						

[1] See text, p. 13, for method of adjustment.
[2] The average of premiums or discounts paid applied to the closing price of the future upon which they were based.
[3] The adjusted future price subtracted from the average cash price, the plus (+) sign indicating a premium and the minus (−) sign a discount.

TABLE 10.—*Average cash price of No. 2 White oats compared with the closing futures price for each Friday, Chicago Board of Trade, from June 4, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Left half

Date	Average closing price 1921 May future	Average closing price 1921 September future	Adjusted future price	Average cash price	Cash premium or discount
1921					
Apr. 1	37	....	37	39½	+2½
8	37¼	....	37¼	38⅞	+1⅝
15	35⅞	....	35⅞	37	+1⅛
22	38⅛	....	38⅛	39	+⅞
29	35½	....	35½	37⅛	+1⅝
May 6	37½	....	37½	38⅝	+1⅛
13	37⅝	....	37⅝	39⅝	+2
20	36⅞	....	36⅞	38¼	+1⅜
27	39⅝	....	39⅝	41⅜	+1¾
June 3	....	42⅝	50⅜	40⅞	−9½
10	....	38⅞	46⅝	37⅛	−9½
17	....	40½	48¼	38¼	−10
24	....	40	47¾	38¾	−9
July 1	....	38¼	46	36	−10
8	....	38⅝	46⅛	36	−10⅛
15	....	41½	49¼	39¼	−10
22	....	40⅞	48⅝	41	−7⅝
1921 December future (first column)					
29	41½	38½	46¼	36¼	−10
Aug. 5	39½	36½	44¼	37⅛	−7⅛
12	39	36	43¾	34⅞	−8⅞
19	36	....	40¾	32⅝	−8⅛
26	38	....	42¾	36¼	−6½
Sept. 2	38	....	42¾	36¼	−5¼
9	41¼	....	46	40¼	−5¾
16	39⅝	....	44⅛	38⅞	−5¼
23	38⅜	....	43⅛	36⅝	−6½
30	36⅜	....	41⅛	35⅛	−6
Oct. 7	33⅝	....	38⅝	34⅜	−4
14	33⅞	....	38⅝	33¾	−4⅞
1922 May future (second column)					
21	33¼	37¾	38	34⅛	−3⅞
28	33¾	38½	38½	34¾	−3¾
Nov. 4	31¼	36⅛	36⅛	34⅛	−2
10	....	37¼	37¼	35⅝	−1⅝
18	....	38¼	38¼	36½	−1¾
25	....	38⅝	38⅝	36¼	−2⅜
Dec. 2	....	38½	38½	35½	−3
9	....	38⅜	38⅜	38¼	−⅛
16	....	38	38	36¾	−1¼
23	....	38⅝	38⅝	37¾	−⅞
30	....	38¾	38¾	36⅝	−2⅛
1922					
Jan. 6	....	38¼	38¼	36¼	−2
13	....	38⅜	38⅜	37⅝	−¾
20	....	38¾	38¾	37¾	−1
27	....	39	39	37¾	−1¼
Feb. 3	....	39½	39½	37⅝	−1⅞
10	....	40⅜	40⅜	39⅜	−1
17	....	41¼	41¼	41½	+¼
24	....	41¾	41¾	40	−1¾

Right half

Date	Average closing price 1922 September future	Average closing price 1922 May future	Adjusted future price	Average cash price	Cash premium or discount
1922					
Mar. 3	....	41⅞	41⅞	41⅞	0
10	....	39¼	39¼	39	−¼
17	....	39⅛	39⅛	39	−⅛
24	....	37	37	37¾	+¾
31	....	36¾	36¾	39	+2¼
Apr. 7	....	36¾	36¾	38¼	+1½
13	....	37½	37½	38⅝	+1⅛
21	....	38	38	41⅞	+3⅞
28	....	37⅜	37⅜	41¾	+4⅜
May 5	....	37½	37½	42¾	+5¼
12	....	37⅜	37⅜	41¾	+4⅜
19	....	37½	37½	41¾	+4¼
26	....	37⅛	37⅛	40⅝	+3½
June 2	40⅝	....	42¾	39¼	−3½
9	38⅝	....	41	39⅝	−1⅝
16	36¾	....	39	37⅛	−1⅞
23	39⅜	....	42½	40⅞	−1⅝
30	38⅝	....	41	40⅜	−⅝
July 7	38⅜	....	41	41	0
14	37	....	39⅝	40¼	+⅝
21	34¾	....	37⅜	38⅛	+¾
28	34⅜	....	37	37¾	+¾
Aug. 4	33½	....	36⅛	35⅞	−¼
1922 December future (second column)					
11	31	33⅝	33⅝	33¼	−⅜
18	30¾	33⅛	33⅛	33⅛	−¼
25	32½	34⅜	34⅜	35	+¼
Sept. 1	....	33⅞	33⅞	35½	+1¼
8	....	35¼	35¼	35⅝	+3
15	....	35⅝	35⅝	38⅝	+2¼
22	....	37⅜	37⅜	37¾	+4¼
29	....	36⅝	36⅝	37	+4⅜
Oct. 6	....	38⅜	38⅜	38¾	+1¾
1923 May future (second column)					
13	40⅞	40¾	41⅛	42⅞	+1¾
20	42½	41¾	42⅛	45	+2⅞
27	42⅛	41⅞	42⅛	44⅞	+2¾
Nov. 3	42	....	42	44⅝	+2⅝
10	42½	....	42⅛	44¾	+2⅝
17	43½	....	43½	45⅜	+2¼
24	43⅛	....	43⅛	45⅛	+2
Dec. 1	43⅛	....	43⅛	46⅜	+3¼
8	43⅛	....	43⅛	45⅜	+2¼
15	46½	....	46½	47⅝	+1⅛
22	45⅞	....	45⅞	46¾	+⅞
29	44¾	....	44¾	44⅛	−⅝
1923					
Jan. 5	44¼	....	44¼	44⅛	−⅛
12	44¾	....	44¾	45⅛	+⅜
19	45	....	45	45¾	+¾
26	44½	....	44½	45¼	+¾

TABLE 10.—*Average cash price of No. 2 White oats compared with the closing futures price for each Friday, Chicago Board of Trade, from June 4, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	1923 May future	1923 September future	Adjusted future price	Average cash price	Cash premium or discount
1923					
Feb. 2	44⅞	....	44⅞	44¾	−⅛
9	45½	....	45½	45½	0
16	46	....	46	46½	+½
23	44⅞	....	44⅞	45½	+⅝
Mar. 2	45⅛	....	45⅛	46½	+1⅜
9	44¾	....	44¾	47⅛	+2⅜
16	45¼	....	45¼	46¼	+1
23	44¾	....	44¾	46⅛	+1⅜
29	44¾	....	44¾	45⅝	+⅞
Apr. 6	45⅜	....	45⅜	46⅜	+1
13	46	....	46	47¼	+1¼
20	45⅛	....	45⅛	47	+1⅞
27	45	....	45	47⅜	+2⅜
May 4	43½	....	43½	46⅜	+2⅞
11	43⅛	....	43⅛	46⅜	+3¼
18	42⅜	....	42⅜	45⅝	+3¼
25	42⅛	....	42⅛	46⅛	+4
June 1	....	38⅛	42⅝	43⅜	+¾
8	....	38⅝	43⅛	45¾	+2⅝
15	....	37⅞	42⅜	44⅜	+2
22	....	37¾	42¼	43⅝	+1⅜
29	....	36¾	41¼	43⅝	+2⅜
July 6	....	35	39½	40¾	+1¼
13	....	34⅜	38⅞	42⅛	+3¼
20	....	35	39½	44¾	+5¼
27	....	35¼	39¾	43⅝	+3⅞
Aug. 2	....	35⅜	39⅞	40½	+⅝
9	....	35¾	40¼	38¼	−2
		1923 December future			
17	39¼	37⅜	41⅞	39⅞	−2
24	40¾	38¾	43¼	41½	−1¾
31	39½	37½	42	40	−2
Sept. 7	39¾	....	42¼	41¼	−1
14	39¾	....	42¼	42⅝	+⅜
21	39⅝	....	42⅛	41¾	−⅜
28	43	....	45½	44½	−1
Oct. 5	43⅛	....	45⅝	44½	−1⅛
		1924 May future			
11	43½	45½	46	44¾	−1¼
19	43⅜	44¼	44¼	43	−1¼
26	41¾	44½	44½	43⅞	−⅝
Nov. 2	....	43⅞	43⅞	43½	−⅜
9	....	44⅜	44⅜	44¼	−⅛
16	....	43⅞	43⅞	43½	−⅜
23	....	44⅜	44⅜	45⅜	+1
30	....	44¾	44¾	44⅞	+⅛
Dec. 7	....	46½	46½	46	−½
14	....	45⅜	45⅜	45¼	−⅛
21	....	44¾	44¾	44⅛	−⅝
28	....	44⅞	44⅞	44½	−⅜
		1924 September future			
1924					
Jan. 4	....	45⅞	45⅞	45⅝	−¼
11	....	46	46	46⅛	+⅛
18	....	47¼	47¼	47¾	+½
25	....	48½	48½	48⅞	+⅜

Date	1924 September future	1924 May future	Adjusted future price	Average cash price	Cash premium or discount
1924					
Feb. 1	....	49⅜	49⅜	50⅛	+¾
8	....	49⅛	49⅛	49¼	+⅛
15	....	47⅝	47⅝	48⅝	+1
21	....	48¾	48¾	49½	+¾
29	....	48⅜	48⅜	49¼	+⅞
Mar. 7	....	47⅝	47⅝	48⅛	+½
14	....	46	46	46½	+½
21	....	47½	47½	48½	+1
28	....	44¼	44¼	47½	+3¼
Apr. 4	....	46	46	49¼	+3¼
11	....	46½	46½	49½	+3
17	....	47⅜	47⅜	50⅜	+3
25	....	46⅞	46⅞	49⅜	+2½
May 2	....	47⅛	47⅛	49⅝	+2½
9	....	47⅛	47⅛	49½	+2⅜
16	....	46⅞	46⅞	49⅛	+2¼
23	....	46¾	46¾	49	+2¼
29	....	46⅝	46⅝	48	+1⅜
June 6	40¼	....	47⅛	50¾	+3⅝
13	42¼	....	49⅛	51¼	+2⅛
20	43¾	....	50⅝	50½	−⅛
27	45⅛	....	52⅜	57⅞	+5½
July 3	44¼	....	51⅛	56¼	+5⅛
11	45	....	51⅞	56⅜	+4½
18	47½	....	54⅜	59⅛	+4¾
		1924 December future			
25	47½	49½	54⅜	55⅜	+1
Aug. 1	48⅞	51⅞	56⅛	53½	−2⅝
8	49⅝	52⅝	56⅝	53⅝	−3
15	....	53	56¾	50½	−6¼
22	....	53	57¼	52⅛	−5⅛
29	....	52½	56¾	50¼	−6½
Sept. 5	....	51¾	56	49	−7
12	....	53⅞	58⅛	51¼	−6⅞
19	....	52½	56¾	50⅜	−6⅜
	1925 May future				
26	56⅜	52⅛	56⅜	51	−5⅜
Oct. 3	61	56½	60¾	57	−3¾
10	59	54⅞	59	54¾	−4¼
17	58¼	52¾	58¼	53⅛	−5⅛
24	52⅞	....	52⅞	49½	−3⅜
31	54⅛	....	54⅛	48¾	−5⅜
Nov. 7	56⅜	....	56⅜	50½	−5⅞
14	57⅝	....	57⅝	54⅞	−2¾
21	58	....	58	54⅜	−3⅝
28	58½	....	58½	54⅞	−3⅝
Dec. 5	60½	....	60½	57½	−3
12	65⅛	....	65⅛	60⅝	−4½
19	64¼	....	64¼	61¼	−3
26	65⅝	....	65⅝	62⅛	−3½
	1925 September future				
1925					
Jan. 2	62⅜	....	62⅜	60⅝	−1¾
9	61⅞	....	61⅞	60¼	−1⅝
16	61⅝	....	61⅝	59⅝	−2
23	61⅜	....	61⅜	59½	−1⅞
30	63½	....	63½	61½	−2

TABLE 10.—*Average cash price of No. 2 White oats compared wit h the closing futures price for each Friday, Chicago Board of Trade, from June 4, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	Average closing price 1925 May future	1925 September future	Adjusted future price	Average cash price	Cash premium or discount	Date	Average closing price 1926 September future	1926 May future	Adjusted future price	Average cash price	Cash premium or discount
1925						**1926**					
Feb. 6	60	-------	60	58⅛	−1⅞	Feb. 5	-------	43¼	43¼	42¼	−1
13	53⅞	-------	53⅞	50¾	−3⅛	11	-------	41½	41½	41	−½
20	52¾	-------	52¾	54⅞	+2⅛	19	-------	41¾	41¾	41	−¾
27	54⅞	-------	54⅞	57	+2⅛	26	-------	41½	41½	41¾	+¼
Mar. 6	52⅞	-------	52⅞	55¼	+2⅜	Mar. 5	-------	40⅛	40⅛	40⅞	+¾
13	45	-------	45	46⅝	+1⅝	12	-------	40½	40½	40⅞	+⅜
20	45⅝	-------	45⅝	47¾	+2⅛	19	-------	39⅛	39⅛	40¾	+1⅝
27	43½	-------	43½	46⅞	+3⅜	26	-------	40⅛	40⅛	41	+⅞
Apr. 3	36⅝	-------	36⅝	43	+6⅜	Apr. 1	-------	41⅛	41⅛	42¼	+1⅛
9	40½	-------	40½	46¼	+5¾	9	-------	41⅞	41⅞	43⅜	+1½
17	41⅜	-------	41⅜	45¾	+4⅜	16	-------	42⅛	42⅛	43½	+1⅜
24	41½	-------	41½	46½	+5	23	-------	41⅜	41⅜	42⅝	+1¼
May 1	41¾	-------	41¾	47	+5¼	30	-------	40⅛	40⅛	42⅛	+2
8	45⅝	-------	45⅝	50¼	+4⅝	May 7	-------	40¼	40¼	41⅞	+1⅝
15	45½	-------	45½	48⅜	+2⅞	14	-------	40¼	40¼	42	+1¾
22	45	-------	45	47¾	+2¾	21	-------	39¼	39¼	41¾	+2½
29	47¾	-------	47¾	50	+2¼	28	-------	39⅜	39⅜	41¼	+1⅞
June 5	-------	51¼	58½	52¼	−6¼	June 4	41⅜	-------	49⅛	41⅜	−7¾
12	-------	54¾	62	54¾	−7¼	11	44	-------	51¾	42⅛	−9⅝
19	-------	51⅛	58⅝	52⅝	−6	18	42⅛	-------	49⅝	42⅛	−7¾
26	-------	46⅞	54⅛	49⅜	−4¾	25	40¼	-------	48	39⅞	−8⅛
July 3	-------	44⅞	52⅛	48⅜	−3¾	July 2	39	-------	46¾	38¼	−8½
10	-------	45⅞	53⅛	49⅜	−3¾	9	40⅝	-------	47⅞	40⅝	−7
17	-------	46¾	54	49⅝	−4⅜	16	41⅜	-------	49⅛	41⅝	−7½
24	-------	44¾	52	46	−6	23	42⅜	-------	50⅛	43¼	−6⅞
31	-------	41⅝	48⅞	42⅝	−6¼						
(1925 December future)						*(1926 December future)*					
Aug. 7	45¼	42⅝	49⅝	43⅜	−6½	30	43⅜	46¼	51⅛	43⅜	−7¾
14	43⅝	40⅞	48⅛	42⅜	−5¾	Aug. 6	41½	44½	49¼	42½	−6¾
21	43½	40¼	47⅝	41⅛	−6¾	13	39¾	43¼	47⅝	41	−6⅝
28	42	-------	46⅜	39⅞	−6½	20	-------	43	47⅝	40¾	−6⅞
Sept. 4	42	-------	46⅜	40½	−5⅞	27	-------	41¼	45⅞	39¼	−6⅝
11	42⅛	-------	46½	40⅝	−6⅛	Sept. 3	-------	40¾	45⅜	38⅝	−6¾
18	41	-------	45⅜	40⅜	−5	10	-------	41¼	45⅞	39½	−6⅜
25	39⅛	-------	43½	38⅛	−5⅜	17	-------	42¾	47⅞	43¾	−3⅝
Oct. 2	39½	-------	43⅞	40	−3⅞	24	-------	43⅝	48¼	45⅝	−2⅞
9	39⅝	-------	44¼	40½	−3¾	Oct. 1	-------	44⅛	48¾	45⅞	−2⅞
16	39⅝	-------	44	39⅞	−4⅛	8	-------	43⅝	48	46½	−1½
23	38¾	-------	43⅛	39¾	−3⅜	15	-------	43⅝	48¼	47¼	−1
30	38¾	-------	43⅛	40	−3⅛	22	-------	44⅜	49	46¼	−2¾
Nov. 6	38⅝	-------	43	40½	−2½	29	-------	43⅝	48⅛	46½	−1¾
						Nov. 5	-------	43½	48⅛	46½	−1⅝
(1926 May future)						*(1927 May future)*					
13	38⅝	43¼	43	40⅝	−2⅜	12	46⅜	42	46⅝	45	−1⅝
20	39⅝	43½	44	41¼	−2¾	19	46¼	41¾	46¼	44¾	−1½
27	38⅝	43¼	43¼	40¼	−3	26	46⅛	41⅛	46⅛	46⅛	0
Dec. 4	-------	44⅝	44⅝	43⅛	−1½	Dec. 3	48¼	-------	48¼	48¼	0
11	-------	45	45	43¼	−1¾	10	49	-------	49	50½	+1½
18	-------	44⅝	44⅝	42⅜	−2¼	17	50⅛	-------	50⅛	49¾	−⅜
24	-------	45	45	41½	−3½	23	50	-------	50	51½	+1½
31	-------	45¾	45¾	43¾	−2	30	49¾	-------	49¾	48½	−1¼
(1926 September future)						*(1927 September future)*					
1926						**1927**					
Jan. 8	-------	46	46	43¼	−2¾	Jan. 7	49¼	-------	49¼	48½	−¾
15	-------	45⅝	45⅝	42⅞	−2½	14	48½	-------	48½	50¾	+2¼
22	-------	44¾	44¾	42⅜	−2⅜	21	48¾	-------	48¾	51¼	+2½
29	-------	44¾	44¾	42⅞	−1⅞	28	48¼	-------	48¼	50½	+2¼

TABLE 10.—*Average cash price of No. 2 White oats compared with the closing futures price for each Friday, Chicago Board of Trade, from June 4, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	1927 May future	1927 September future	Adjusted future price	Average cash price	Cash premium or discount
1927					
Feb. 4	47⅛	......	47⅛	48½	+1⅜
11	46⅝	......	46⅝	48¼	+1⅝
18	45¾	......	45¾	47	+1¼
25	44⅞	......	44⅞	45¼	+⅜
Mar. 4	47⅛	......	47⅛	49⅜	+2¼
11	45⅝	......	45⅜	48¾	+3⅜
18	44½	......	44½	48½	+4
25	43⅝	......	43⅝	45⅞	+2⅛
Apr. 1	43⅞	......	43⅞	48¼	+4⅜
8	44	......	44	48¼	+4¼
14	43⅝	......	43⅝	47¾	+4⅛
22	44⅞	......	44⅞	48⅝	+3¾
29	45⅛	......	45⅛	49½	+4⅜
May 6	47⅝	......	47⅝	49¾	+2⅛
13	49⅜	......	49⅜	50⅞	+1½
20	48⅝	......	48⅝	52½	+3⅞
27	50⅝	......	50⅝	52½	+1⅞
June 3	......	49	56½	52⅝	-3½
10	......	47½	54⅝	51¾	-2⅞
17	......	48	55⅛	52½	-2⅝
24	......	46⅜	53¼	48¾	-4½
July 1	......	46¾	53⅝	48⅝	-5⅛
8	......	48	55⅛	51½	-3⅝
15	......	44⅝	51¾	50	-1¾
22	......	43⅝	50¾	48¾	-2
29	......	43⅜	50½	46¼	-4⅜
Aug. 5	......	47	54⅛	46⅝	-7½
	1927 December future				
12	52½	48⅝	55¾	49⅝	-6⅛
19	50¾	46⅞	54	50	-4
26	50⅜	46⅝	53⅝	48¼	-5⅜
Sept. 2	48¾	......	52	47⅝	-4⅜
9	48⅞	......	52½	48¼	-3⅞
16	47⅞	......	51	48¾	-2¼
23	48½	......	51¾	51	-¾
30	48⅝	......	51⅞	51¾	-⅛
Oct. 7	48⅜	......	51¾	51½	-¼
14	46½	......	49¾	50	+¼
21	45½	......	48½	48¾	+¼
28	47⅜	......	50⅝	49¾	-⅞
Nov. 4	48¼	......	51½	50⅝	-⅞
10	49⅛	......	52⅜	52	-⅜
		1928 May future			
18	49⅜	52¼	52⅝	50⅞	-1¾
25	49⅜	52⅜	52⅜	52⅛	-¼
Dec. 2	52⅜	56¼	56¼	55⅜	-⅞
9	......	56	56½	56¾	+¼
16	......	56½	56½	56¾	+¼
23	......	54⅞	54⅞	56	+1⅛
30	......	55	55	55	0

Date	1928 September future	1928 May future	Adjusted future price	Average cash price	Cash premium or discount
1928					
Jan. 6	......	55¼	55¼	55⅝	+⅜
13	......	55½	55½	56½	+1
20	......	56¼	56¼	56⅞	+⅝
27	......	54¾	54¾	56⅜	+1⅝
Feb. 3	......	55⅜	55⅜	57¼	+1⅞
10	......	55¼	55¼	57¼	+2
17	......	55⅝	55⅝	57½	+1⅞
24	......	56	56	59¼	+3¼
Mar. 2	......	57⅜	57⅜	61¼	+3⅞
9	......	56⅝	56⅝	60¼	+3⅝
16	......	58¼	58¼	61½	+3¼
23	......	56¾	56¾	61¼	+4½
30	......	58⅛	58⅛	62½	+4⅜
Apr. 5	......	56¾	56¾	60¾	+4
13	......	58	58	63½	+5½
20	......	62⅝	62⅝	68½	+6⅜
27	......	64½	64½	71½	+7
May 4	......	63⅞	63⅞	70⅝	+6¾
11	......	65⅝	65⅝	71	+5⅜
18	......	63½	63½	70¼	+6¾
25	......	65⅝	65⅝	72⅝	+6½
June 1	45⅞	......	50⅛	64	+13⅞
8	46⅛	......	50⅜	72¼	+21⅞
15	45⅞	......	50⅛	69½	+19⅜
22	45½	......	49¾	72	+22¼
29	45½	......	49¾	71¾	+22
July 6	43⅞	......	48⅛	71¼	+23⅛
13	42	......	46¼	70⅝	+24¼
20	40¾	......	45	64	+19
27	40⅜	......	44⅜	47½	+3⅛
		1928 December future			
Aug. 3	38¾	......	43	42¾	-¼
10	37⅛	40¼	41⅜	39¾	-1⅝
17	36¼	39⅜	40½	37½	-3
24	37	40	41⅛	38⅞	-2¼
31	......	40½	41⅝	42	+⅜
Sept. 7	......	41¼	42⅜	41⅜	-1
14	......	41½	42⅝	42	-⅝
21	......	42⅞	44	44¾	+¾
28	......	43	44⅜	44¼	-⅛
Oct. 5	......	43⅞	45	45	0
11	......	42⅝	43¾	45⅛	+1⅜
19	......	43¼	44⅜	44¾	+⅜
26	......	42⅞	44	44	0
	1929 May future				
Nov. 2	......	43¾	44⅞	47	+2⅛
9	45⅝	44⅝	45¾	47¼	+1½
16	46⅝	45½	46⅝	47⅝	+1
23	47⅞	46¾	47⅞	48½	+⅝
30	47⅞	......	47⅞	48¾	+⅞
Dec. 7	48¼	......	48¼	48⅞	+⅝
14	48¾	......	48¾	49⅜	+⅝
21	48⅜	......	48⅜	48½	+⅛
28	48⅛	......	48⅛	49¼	+1⅛

TABLE 10.—*Average cash price of No. 2 White oats compared with the closing futures price for each Friday, Chicago Board of Trade, from June 4, 1920, to September 26, 1930*—Continued

[In cents per bushel]

Date	1929 May future	1929 September future	Adjusted future price	Average cash price	Cash premium or discount
1929					
Jan. 4	47⅞	--------	47⅞	49	+1⅛
11	49⅞	--------	49⅞	51	+1⅛
18	53⅛	--------	53⅛	55½	+2⅜
25	54⅜	--------	54⅜	56¾	+2⅜
Feb. 1	53½	--------	53½	55⅛	+1⅝
8	52¾	--------	52¾	54¼	+1½
15	52½	--------	52½	54¼	+1¾
21	52⅛	--------	52⅛	52¾	+⅝
Mar. 1	51⅞	--------	51⅞	52	+⅛
8	49½	--------	49½	51½	+2
15	49	--------	49	52½	+3½
22	46¾	--------	46¾	50⅜	+3⅝
28	46¼	--------	46¼	49⅞	+3⅝
Apr. 5	46⅛	--------	46⅛	50	+3⅞
12	49½	--------	49½	51⅞	+2⅜
19	48	--------	48	49	+1
26	47⅛	--------	47⅛	48⅛	+1
May 3	48½	--------	48½	49½	+1
10	45⅞	--------	45⅞	46½	+⅝
17	46⅛	--------	46⅛	48¼	+2⅛
24	45	--------	45	47⅝	+2⅝
31	38⅞	--------	38⅞	42	+3⅛
June 7	--------	43½	51⅞	46¾	-5⅛
14	--------	43⅜	51¾	46¾	-5
21	--------	43⅞	52¼	47½	-4¾
28	--------	43⅞	52¼	45¾	-6½
1929 December future					
July 5	--------	47½	55⅞	47⅜	-8½
12	--------	46⅝	55	46⅞	-8⅛
19	51½	48	56⅜	48¼	-8⅛
26	53⅛	49¼	57⅝	49⅞	-7¾
Aug. 2	55⅝	51⅛	60	48⅝	-11⅜
9	52⅝	--------	57	46¼	-10¾
16	53	--------	57⅜	46½	-10⅞
23	51⅜	--------	55¾	43½	-12¼
30	53¼	--------	57⅝	45⅞	-11¾
Sept. 6	54¼	--------	58⅝	49	-9⅝
13	55⅛	--------	59⅝	50½	-9⅛
20	53⅝	--------	57¾	50⅛	-7⅝
27	53⅝	--------	58	52⅛	-5⅞
Oct. 4	53⅛	--------	57⅝	50⅛	-7⅜
11	51¾	--------	56⅛	47½	-8⅝
18	50	--------	54⅜	47¼	-7⅛
25	50	--------	54⅜	46⅛	-8¼
1930 May future					
Nov. 1	50	--------	54⅜	48¼	-6⅛
8	46⅞	51¾	51¼	45⅝	-5⅝
15	44¾	49⅜	49⅛	45¼	-3⅞
22	46⅝	50⅜	50⅜	47	-3⅜
29	--------	50½	50½	46	-4½

Date	1929 December future	1930 May future	Adjusted future price	Average cash price	Cash premium or discount
1929					
Dec. 6	--------	51⅛	51⅛	48⅜	-2¾
13	--------	49¼	49¼	45⅜	-3⅞
20	--------	48	48	45¾	-2¼
27	--------	49⅜	49⅜	46¼	-3⅛
1930 September future					
1930					
Jan. 3	--------	49½	49⅛	45⅝	-3½
10	--------	48¾	48¾	46⅜	-2⅜
17	--------	47⅝	47⅝	46⅛	-1½
24	--------	47	47	46¼	-¾
31	--------	45¼	45¼	44⅜	-⅞
Feb. 7	--------	46⅛	46⅛	45½	-⅝
14	--------	45⅞	45⅞	45½	-⅜
21	--------	43½	43½	42¾	-¾
28	--------	44	44	44¼	+¼
Mar. 7	--------	43¾	43¾	44	+¼
14	--------	40⅞	40⅞	41⅜	+½
21	--------	43⅞	43⅞	45⅝	+1¾
28	--------	44⅛	44⅛	44½	+⅜
Apr. 4	--------	45	45	45⅞	+⅞
11	--------	44¾	44¾	45½	+¾
17	--------	43⅜	43⅜	43⅞	+½
25	--------	41⅞	41⅞	42½	+⅝
May 2	--------	40½	40½	43	+1⅝
9	--------	41¼	41¼	43	+1¾
16	--------	42½	42½	43⅞	+1⅜
23	--------	42¼	42¼	42¾	+½
29	--------	41½	41½	41½	0
1930 December future					
June 6	40	--------	46⅜	41¼	-5⅛
13	37¾	--------	44⅛	39¾	-4⅜
20	36⅞	39⅞	43¼	38⅜	-4⅞
27	36½	39½	42¾	38¾	-4
July 3	36	39⅜	42⅝	36¾	-5⅞
11	36¼	39⅝	42⅝	37¼	-5⅜
18	37	40½	43¾	36¾	-7
25	37⅜	41⅛	44⅜	36¼	-8⅛
Aug. 1	37¼	41⅛	44⅜	36⅝	-7¾
8	41¾	45⅝	48⅞	42⅛	-6¾
15	40⅜	44	47¼	39⅜	-7⅞
22	41⅝	44½	47¾	40¾	-7
29	40⅝	44¼	47½	41⅜	-6⅛
Sept. 5	39¾	43⅜	46⅝	40¾	-5⅞
12	37⅜	41⅛	44⅜	39½	-4⅞
19	37½	40	43¼	38¾	-4½
26	35	36⅞	40⅛	36	-4⅛

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